

PONY

سلسلة كتب الأسفار

MATH

2025

5

PRIMARY
FIRST TERM



Contents



Theme 1

Number Sense and Operations

Unit 1

Decimal Place Value and Computation 6

Concept 1.1: Decimals to the Thousandths Place 6

Lesson 1: Decimals to the Thousandths Place 7

Lessons 2&3: Place Value Shuffle

Composing and Decomposing Decimals 13

Lesson 4: Comparing Decimals 19

Lesson 5: Rounding Decimals 21

Concept 1.2: Adding and Subtracting Decimals 27

Lessons 6&7: Estimating Decimal Sums

Modeling Decimal Addition 28

Lessons 8–11: Modeling Subtracting Decimals

Estimating Decimal Differences

Subtracting to the Thousandths Place

Decimal Story Problems 36

Unit 2

Number Relationships 42

Concept 2.1: Expressions, Equations, and the Real World 42

Lesson 1: Expressions, Equations, and Variables 43

Lessons 2&3: Variables in Equations

Telling Stories with Numbers 46

Concept 2.2: Factors and Multiples 49

Lesson 4: Prime Factorization 50

Lesson 5: Greatest Common Factors (GCF) 53

Lessons 6&7: Identifying Multiples

Least Common Multiple (LCM) 56

Lesson 8: Factors or Multiples? 61

Unit 3

Multiplication with Whole Numbers 65

Concept 3.1: Models for Multiplication 65

Lesson 1: Using the Area Model to Multiply 66

Lesson 2: The Distributive Property of Multiplication 69

Concept 3.2: Multiplying 4-Digit Numbers by 2-Digit Numbers 74

Lessons 8–11: Multiplying by a 2-Digit Number Using Algorithm

Multiplying Multi-Digit Numbers

Multiplication Problems in the Real World 75

Theme 2

Mathematical Operations and Algebraic Thinking

Unit 4

Division with Whole Numbers 82

Concept 4.1: Models for Division 82

Lessons 1&2: Dividing by a Two-Digit Number	82
Estimating Quotients	83

Concept 4.2: Dividing by 2-Digit Divisors 90

Lessons 3–5: Using the Division Algorithm	
The Relation Between Division and Multiplication	
Multistep Story Problems	91

Unit 5

Multiplication and Division with Decimals 97

Concept 5.1: Multiplying Decimals 97

Lessons 1&2: Multiplying by Powers of Ten	
Multiplying Decimals by Whole Numbers	98

Lessons 3&4: Multiplying Tenths by Tenths	
Multiplying Using the Area of Rectangle Model	102

Lessons 5&6: Multiplying Decimals through the Hundredths Place	
Multiplying Decimals through the Thousandths Place	105

Lessons 7–9: Decimals and the Metric System	
Measurement, Decimals, and Powers of Ten	
Solving Multistep Story Problems	107

Concept 5.2: Dividing Decimals 110

Lessons 10&11: Dividing by Powers of Ten	
Patterns and Relationships in Powers of Ten	111

Lessons 12&13: Dividing Decimals by Whole Numbers	
Dividing Decimals by Decimals	114

Unit 6

Numerical Expressions and Patterns 118

Concept 6.1: Evaluating Numerical Expressions and Patterns 118

Lessons 1–4: Order of Mathematical Operations	
Numerical Expressions with Parentheses	
Writing Expressions to Represent Scenarios	
Identifying Numerical Patterns	119

Guide Answers 127

Theme

1

Number Sense and Operations



Unit 1 **Decimal Place Value and Computation**
Concept 1.1: Decimals to the Thousandths Place
Concept 1.2: Adding and Subtracting Decimals

Unit 2 **Number Relationships**
Concept 2.1: Expressions, Equations, and the Real World
Concept 2.2: Factors and Multiples

Unit 3 **Multiplication with Whole Numbers**
Concept 3.1: Models for Multiplication
Concept 3.2: Multiplying 4-Digit Numbers by 2-Digit Numbers

Unit

1

Decimal Place Value and Computation

Concept

1.1

Decimals to the Thousandths Place

Lesson

1

Decimals to the Thousandths Place

Learning Objectives:

By the end of this lesson, the student will be able to:

- Read decimal numbers to the Thousandths place.
- Write decimal numbers to the Thousandths place.

Lessons

2&3

Place Value Shuffle

Composing and Decomposing Decimals

Learning Objectives:

By the end of these lessons, the student will be able to:

- Explain how a digit changes value as it moves to the left or right in a decimal or whole number.
- Compose and decompose decimals in multiple ways.

Lesson

4

Comparing Decimals

Learning Objective:

By the end of this lesson, the student will be able to:

- Compare decimals to the Thousandths place.

Lesson

5

Rounding Decimals

Learning Objective:

By the end of this lesson, the student will be able to:

- Round numbers to the nearest Tenth, Hundredth, or Thousandth.



Lesson

1

Decimals to the Thousandths Place

1

Unit

Remember

The whole one can be divided into

Ten equal parts

Each part is called
one tenth.

$$0.1 = \frac{1}{10}$$

One hundred equal parts

Each part is called
one hundredth.

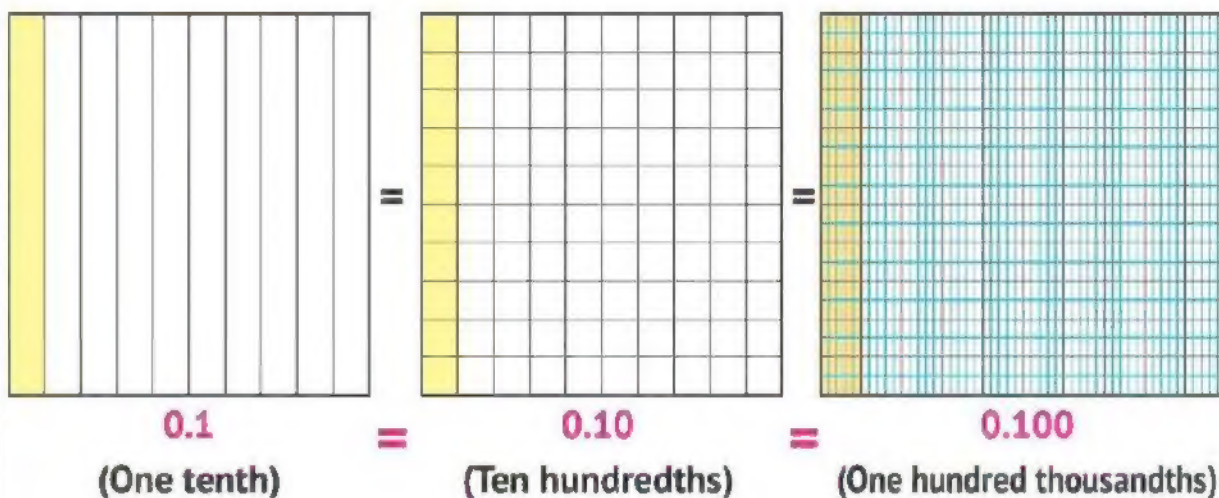
$$0.01 = \frac{1}{100}$$

One thousand equal parts

Each part is called
one thousandth.

$$0.001 = \frac{1}{1,000}$$

Note that: In decimals, zeros can be added to the right of the last non-zero digit without changing the value of the number.



Also: $0.2 = 0.20 = 0.200$, $0.3 = 0.30 = 0.300$, ... and so on.

Decimals

- A decimal is a number that consists of both a whole number and a fractional part.
- Decimal numbers lie between integers and represent numerical values for quantities that are whole plus some part of a whole.

Whole number part (integer)

To the **left** of the decimal point

Fractional part

To the **right** of the decimal point

357 . 94

It's read as: Three hundred fifty-seven **and** ninety-four hundredths.

Reading Numbers from One Milliard to Thousandths

Learn To read any decimal:

- Divide the whole number into numerical groups according to the place value table.
- Read the number from the **left**, each number group is followed by its name, separate the integer and the decimal with the word (and).
- Read the fractional parts followed by the name of the **last decimal part** on the **right**. (according to the number of decimal places)

Whole Number										Decimal Point	Decimals		
Milliards	Millions			Thousands			Ones				Tenths	Hundredths	Thousandths
Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones				
6	0	0	8	0	4	5	1	7	0	.	1	7	
6 milliard	8 million			45 thousand			170			17 hundredth			

The previous number (6,008,045,170.17) is read as:

Six milliard, eight million, forty-five thousand, one hundred seventy **and** seventeen hundredths.

► Note the reading of the following numbers:

0 . 6

is read as: Six tenths

0 . 2 8

is read as: Twenty-eight hundredths

0 . 0 2 7

is read as: Twenty-seven thousandths

0 . 4 9 8

is read as: Four hundred ninety-eight thousandths

5 . 7

is read as: Five and seven tenths

3 . 2 4

is read as: Three and twenty-four hundredths

5 8 . 3 9

is read as: Fifty eight and thirty-nine hundredths

2 , 4 5 0 . 8

is read as: Two thousand, four hundred fifty and eight tenths

5 , 0 2 7 . 0 0 6

is read as: Five thousand, twenty-seven and six thousandths

1 Write the following numbers in standard form:

a Two tenths: 0.2 b Five hundredths: 0.05

c Thirteen hundredths: 0.13 d Four thousandths: 0.004

e Eighty-five thousandths: 0.085

f Seven hundred ninety-two thousandths: 0.792

g Two and three tenths: 2.3

h Forty-one and eight hundredths: 41.08

i Thirty-two and seventy-four hundredths: 32.74

j Fifty and sixteen thousandths: 50.016

k Nine hundred sixty-one and two hundred five thousandths: 961.205

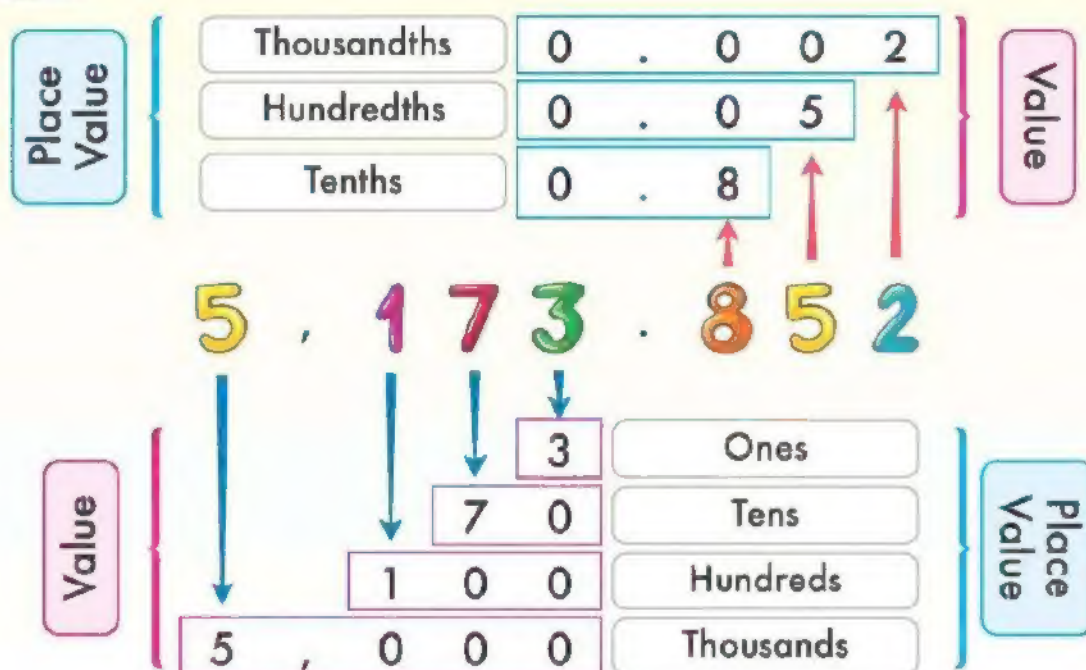
Number Sense and Operations

2 Write the following numbers in word form:

- a 0.9: **Nine tenths.**
- b 0.06: **Six hundredths.**
- c 0.69: **Sixty-nine hundredths**
- d 0.045: **Forty-five thousandths**
- e 0.824: **Eight hundreds twenty-four thousandths**
- f 6.8: **Six and eight tenths**
- g 25.08: **Twenty-five and eight hundredths**
- h 945.25: **Nine hundred forty-five and twenty-five hundredths**
- i 20.036: **Twenty and thirty-six thousandths**
- j 358.124: **Three hundred fifty-eight and one hundred twenty-four thousandths**

The Value of Digits from One Milliard to One Thousandth

Learn



From the previous figure:

We notice that the place value and the value for each digit are as follows:

Place Value		Value
Thousandths	← 2 →	0.002
Hundredths	← 5 →	0.05
Tenths	← 8 →	0.8
Ones	← 3 →	3
Tens	← 7 →	70
Hundreds	← 1 →	100
Thousands	← 5 →	5,000

3 Complete the following:

- a In 56,258.96, the digit 9 is in the Tenths place and its value is 0.9.
- b In 87,022.8, the digit 7 is in the Thousands place and its value is 7,000.
- c In 605.234, the digit 0 is in the Tens place and its value is 0.
- d In 2,845.127, the digit 5 is in the Ones place and its value is 5.

4 Write the place value and the value of the encircled digit in the following numbers:

	Number	Place Value	Value
a	452,207.5(6)	<u>Hundredths</u>	<u>0.06</u>
b	6,500,(7) 39.7	<u>Hundreds</u>	<u>700</u>
c	9,009.00(9)	<u>Thousandths</u>	<u>0.009</u>
d	(3) 7,000,157.128	<u>Ten Millions</u>	<u>30,000,000</u>
e	80,218.(0) 39	<u>Tenths</u>	<u>0</u>

Quiz

10

1 Choose the correct answer:

- a The value of the digit 3 in 12.358 is **0.3** . (30 or **0.3** or 3 or 0.003)
- b The place value of the digit 9 in 4.649 is **Thousandths**
(**Thousandths** or Tens or Tenths or Hundredths)
- c Seventy thousandths = **0.07** (0.7 or 0.70 or 0.007 or **0.07**)

2 Complete the following:

- a 63.705 (in word form) is **Sixty-three and seven hundred five thousandths** .
- b Twenty-four and forty-eight thousandths (in standard form) is **24.048** .
- c In 592.74, the digit 4 is in the **hundredths** place and its value is **0.04** .

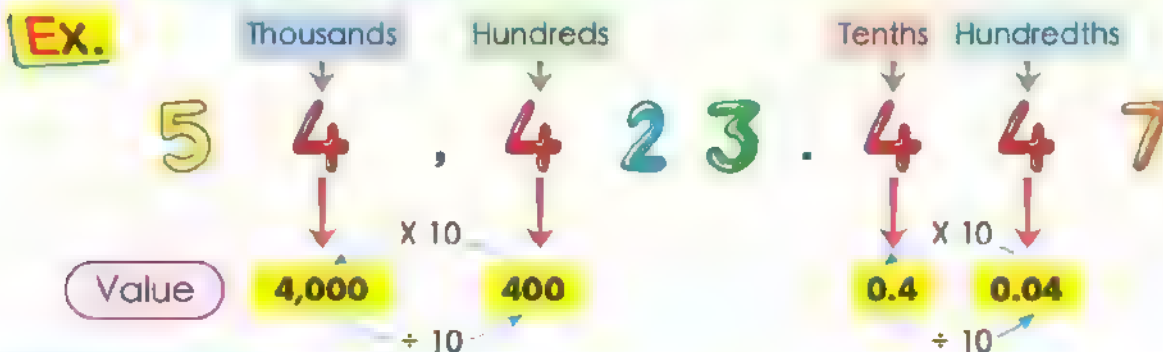
3 Match:

- | | | | | |
|---------------------|---|---|-------|----------|
| a Three thousandths | • | • | 0.03 | 1 |
| b Three hundredths | • | • | 0.3 | 2 |
| c Three hundreds | • | • | 0.003 | 3 |
| d Three tenths | • | • | 300 | 4 |

LESSONS 2&3

Place Value Shuffle Composing and Decomposing Decimals

Learn The value of the digit changes within the number by changing its place.



From above The value of the digit:

- Increases by 10 times ($\times 10$) as it moves to the left.
- Decreases by 10 times ($\div 10$) as it moves to the right.

Learn Using the place value charts to solve multiplying and dividing by 10 problems

Ex. Use the place value chart to solve the following problem:
 75.4×10

Whole Number						Decimal Point	Decimals		
Thousands			Ones						
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
				7	5	.	4		
			7	5	4				

- The value of 7 increased when multiplying by 10 from 70 to 700
 - The value of 5 increased when multiplying by 10 from 5 to 50
 - The value of 4 increased when multiplying by 10 from 0.4 to 4
- Therefore:
- 75.4 754

The value of the whole number 75.4 increased when multiplying by 10 from 75.4 to 754. So, $75.4 \times 10 = 754$.

1 Use the place value charts to solve the following problems.

Fill in the blanks to show how the value of each digit has changed:

a 386×10

Whole Number						Decimal Point	Decimals		
Thousands			Ones						
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
			3	8	6	.			
		3	8	6	0	.			

- The value of 6 (increased/decreased) when multiplying by 10 from 6 to 60.
- The value of 8 (increased/decreased) when multiplying by 10 from 80 to 800.
- The value of 3 (increased/decreased) when multiplying by 10 from 300 to 3,000.
- Therefore, the value of the whole number 386 (increased/decreased) when multiplying by 10 from 386 to 3,860. So, $386 \times 10 = 3,860$.

b 2.5×10

Whole Number						Decimal Point	Decimals		
Thousands			Ones						
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
					2	.	5		
				2	5	.			

- The value of 5 (increased/decreased) when multiplying by 10 from 0.5 to 5.
- The value of 2 (increased/decreased) when multiplying by 10 from 2 to 20.
- Therefore, the value of the whole number 2.5 (increased/decreased) when multiplying by 10 from 2.5 to 25. So, $2.5 \times 10 = 25$.

EX. Use the place value chart to solve the following problem:

$$75.4 \div 10 = 7.54$$

Whole Number						Decimal Point	Decimals		
Thousands			Ones						
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
				7	5	.	4		
					7	.	5	4	

- The value of **7** decreased when dividing by 10 from **70** to **7**
 - The value of **5** decreased when dividing by 10 from **5** to **0.5**
 - The value of **4** decreased when dividing by 10 from **0.4** to **0.04**
- \downarrow \downarrow
75.4 **7.54**

Therefore:

The value of the whole number 75.4 decreased by a factor of 10 from 75.4 to 7.54. So, $75.4 \div 10 = 7.54$.

2 Use the place value charts to solve the following problems.

Fill in the blanks to show how the value of each digit has changed:

a $915 \div 10$

Whole Number						Decimal Point	Decimals		
Thousands			Ones						
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
			9	1	5	.			
				9	1	.	5		

- The value of **5** (increased/decreased) when dividing by **10** from **5** to **0.5**.
- The value of **1** (increased/decreased) when dividing by **10** from **10** to **1**.
- The value of **9** (increased/decreased) when dividing by **10** from **900** to **90**.
- Therefore, the value of the whole number **915** (increased/decreased) when dividing by **10** from **915** to **91.5**. So, $915 \div 10 = 91.5$.

Number Sense and Operations

6 $8.7 \div 10$

Whole Number						Decimal Point	Decimals		
Thousands			Ones						
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
					8	.	7		
					0	.	8	7	

- The value of **7** (increased/decreased) when dividing by **10** from **0.7** to **0.07**.
- The value of **8** (increased/decreased) when dividing by **10** from **8** to **0.8**.
- Therefore, the value of the whole number **8.7** (increased/decreased) when dividing by **10** from **8.7** to **0.87**. So, $8.7 \div 10 = 0.87$.



Notes:

- When multiplying by **10**,
move all digits of the number **one** place to the **left**.
- When dividing by **10**,
move all digits of the number **one** place to the **right**.

3 Find the result:

a $75.65 \times 10 = 756.5$

b $83.19 \div 10 = 8.319$

c $3.587 \times 10 = 35.87$

d $952.4 \div 10 = 95.24$

e $254 \times 10 = 2,540$

f $360 \div 10 = 36$

Decomposing Decimal Numbers in Expanded Forms

Learn Extended form is used to decompose decimals.

Note the following:

a $0.025 = 0.02 + 0.005$

b $0.25 = 0.2 + 0.05$

c $4721.7 = 4,000 + 700 + 20 + 1 + 0.7$ d $472.17 = 400 + 70 + 2 + 0.1 + 0.07$

e $47.217 = 40 + 7 + 0.2 + 0.01 + 0.007$



Note!

Decimals can be decomposed in several ways, as in the following example:

$$\begin{array}{ccc}
 14 + 0.25 & \longleftrightarrow & 10 + 4 + 0.25 \\
 & 14.25 & \\
 14 + 0.2 + 0.05 & \longleftrightarrow & 10 + 4 + 0.2 + 0.05
 \end{array}$$

4 Decompose the following numbers:

a $34.527 = 30 + 4 + 0.5 + 0.02 + 0.007$. (1st Way: Expanded form)

= $34 + 0.527$. (2nd Way)

= $30 + 4 + 0.527$. (3rd Way)

b $21.045 = 20 + 1 + 0.04 + 0.005$. (1st Way: Expanded form)

= $20 + 1 + 0.045$. (2nd Way)

= $21 + 0.045$. (3rd Way)

c $14.932 = 10 + 4 + 0.9 + 0.03 + 0.002$. (1st Way: Expanded form)

= $14 + 0.932$. (2nd Way)

= $14 + 0.9 + 0.03 + 0.002$. (3rd Way)

d $231.128 = 200 + 30 + 1 + 0.1 + 0.02 + 0.008$. (1st Way: Expanded form)

= $231 + 0.128$. (2nd Way)

= $231 + 0.1 + 0.02 + 0.008$. (3rd Way)

e $508.17 = 500 + 8 + 0.1 + 0.07$. (1st Way: Expanded form)

= $508 + 0.17$. (2nd Way)

= $508 + 0.1 + 0.07$. (3rd Way)

Number Sense and Operations

5 Compose the following numbers:

- a $200 + 30 + 0.5 + 0.007 =$ **230.507**
 b $60 + 5 + 0.08 + 0.009 =$ **65.089**
 c $24 + 0.075 =$ **24.075**
 d $65 + 0.7 + 0.02 + 0.009 =$ **65.729**
 e $125 + 0.87 =$ **125.87**

Quiz

10

1 Complete the following:

- a $36.17 \times 10 =$ **361.7** (3.617 or 36.17 or 3617 or **361.7**)
 b $624.8 \div 10 =$ **62.48** (624.8 or 6.248 or **62.48** or 6248)
 c $20 + 0.1 + 0.05 + 0.006 =$ **20.156** (215.06 or **20.156** or 21.56 or 215.06)
 d $0.007 + 8 + 0.2 + 500 =$ **508.207** (**508.207** or 7.825 or 502.807 or 507.28)

2 Decompose the following number:

- a $24.15 =$ **$24 + 0.15$** (1st way :Expanded form)
 $=$ **$20 + 4 + 0.15$** (2nd way)
 $=$ **$24 + 0.1 + 0.05$** (3rd way)
 b $30.025 =$ **Thirty and twenty-five thousandths.** (In word form)
 c $40,590 = (4 \times$ **10,000** $) + (5 \times$ **100** $) + (9 \times$ **10** $)$

3 Match:

- a 31.49 \rightarrow 3 + 0.1 + 0.04 + 0.009 **1**
 b 3.149 \rightarrow 300 + 10 + 0.9 + 4 **2**
 c 314.9 \rightarrow 0.09 + 0.4 + 1 + 30 **3**

Lesson

4

Comparing Decimals

EX. Compare between 85.367 and 85.368, using the following steps:

Step 1

Compare the whole numbers.

Step 2

Compare the digits in the Tenths place.

Step 3

Compare the digits in the Hundredths place.

Step 4

Compare the digits in the Thousandths place.

85.367

85.368

85.367

85.368

85.367

85.368

85.367

< 85.368

If they are equal

If they are equal

If they are equal

1 Compare using (<, = or >):

a $45.057 < 45.100$

b $98.013 < 98.101$

c $50.009 < 50.100$

d $10.1 > 10.011$

e $12.01 > 2.099$

f $34.5 = 34.500$

2 Select the greatest number:

a 1.401 , 1.341 , 1.440 , 1.041 b 1.055 , 1.3 , 1.28 , 1.045

3 Select the smallest number:

a 20.09 , 20.1 , 20.001 , 20.011 b 9.003 , 3.009 , 30.09 , 90.03

4 Circle the numbers greater than 35.8:

35.08 , 53.6 , 35.92 , 3.589 , 35.099

5 Circle the numbers less than 25.09:

25.5 , 52.09 , 25.009 , 2.509 , 29.05

Number Sense and Operations

6 Arrange the following numbers in an **ascending** order:

45.21 , 54.12 , 45.12 , 54.21 , 51.24

• 45.12 , 45.21 , 51.24 , 54.12 , 54.21

7 Arrange the following numbers in a **descending** order:

2.011 , 21.010 , 12.001 , 100.12 , 10.012

• 100.12 , 21.010 , 12.001 , 10.012 , 2.011

Quiz

10

1 Complete the following:

a 54.54 < 400.45

(> or = or <)

b 712.7 > 71.99

(> or = or <)

c 11 > 0.999

(> or = or <)

2 Arrange in an **ascending** order:

257.12 , 251.72 , 725.12 , 257.21

• 251.72 , 257.12 , 257.21 , 725.12

3 Circle the numbers smaller than 2.05.

2.5 , 2.025 , 0.555 , 2.1 , 2.25 , 5.02 , 1.99 , 2.008

Lesson

5

Rounding Decimals

To the Nearest

1 Whole Number

Unit

Ones

2 Tenth

One decimal place

0.1 - $\frac{1}{10}$

3 Hundredth

Two decimal places

0.01 - $\frac{1}{100}$

4 Thousandth

Three decimal places

0.001 - $\frac{1}{1,000}$

Learn

Rounding Strategies

First

The Midpoint Strategy:

Ex. Round each of the following numbers:

a 24.7 (To the nearest whole number)

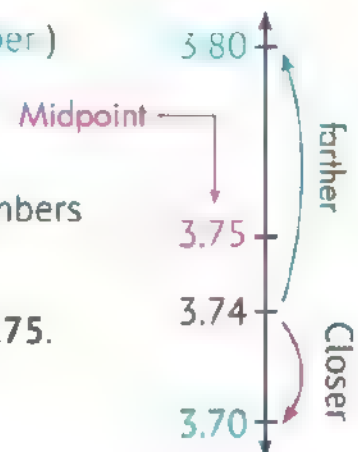
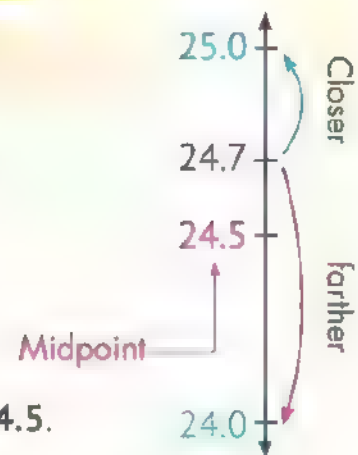
- The number 24.7 is located between the numbers 24.0 and 25.0.
- The midpoint between the two numbers is 24.5.
- 24.7 is closer to 25.0.

So: $24.7 \approx 25$ (To the nearest whole number)

b 3.74 (To the nearest tenth)

- The number 3.74 is located between the numbers 3.70 and 3.80.
- The midpoint between the two numbers is 3.75.
- 3.74 is closer to 3.70.

So: $3.74 \approx 3.7$ (To the nearest Tenth)

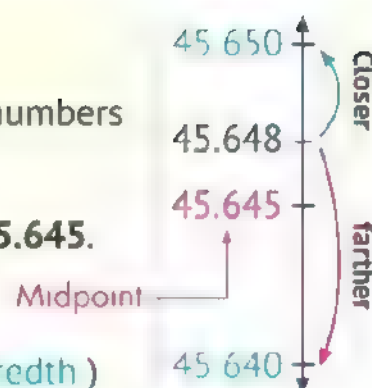


Number Sense and Operations

c 45.648 (To the nearest Hundredth)

- The number **45.648** is located between the numbers **45.640** and **45.650**.
- The midpoint between the two numbers is **45.645**.
- 45.648** is closer to **45.650**.

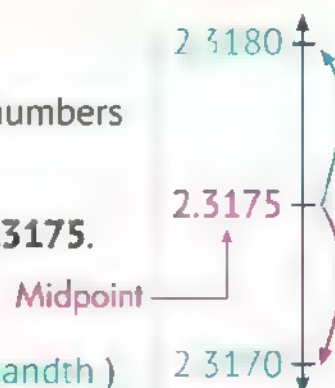
So: $45.648 \approx 45.65$ (To the nearest Hundredth)



d 2.3175 (To the nearest Thousandth)

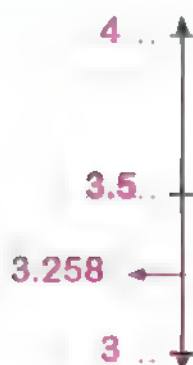
- The number **2.3175** is located between the numbers **2.3170** and **2.3180**.
- The midpoint between the two numbers is **2.3175**.
- 2.3175** is located at the midpoint.

So: $2.3175 \approx 2.318$ (To the nearest Thousandth)

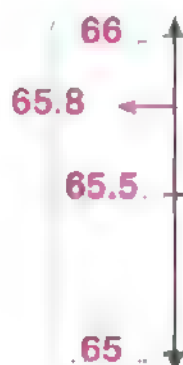


1 Label the midpoint of the number line. Place the given decimal number at its proper location, and then round to the nearest whole number:

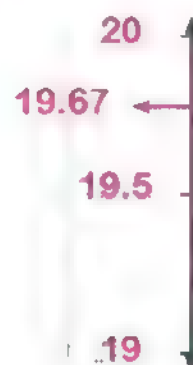
a $3.258 \approx 3$



b $65.8 \approx 66$



c $19.67 \approx 20$



- 2 Label the midpoint of the number line. Place the given decimal number at its proper location, and then round to the nearest **Tenth**:

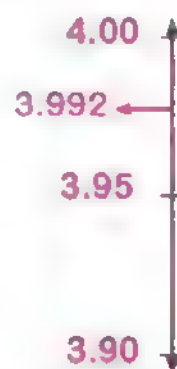
a $0.65 \approx 0.7$



b $45.54 \approx 45.5$

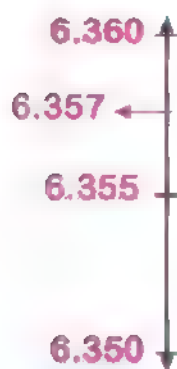


c $3.992 \approx 4$

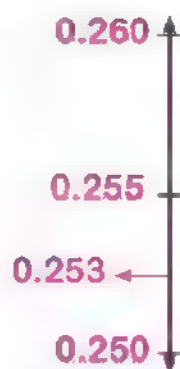


- 3 Label the midpoint of the number line. Place the given decimal number at its proper location, and then round to the nearest **Hundredth**:

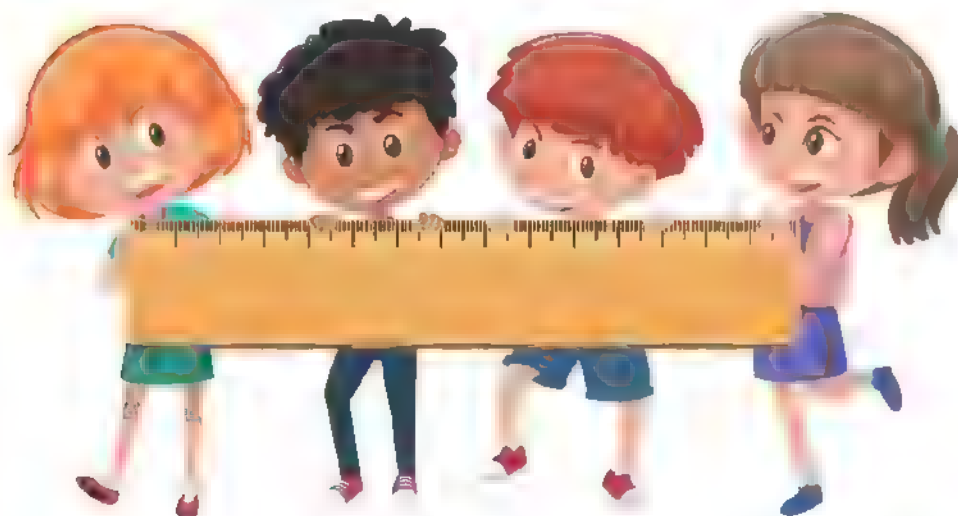
a $6.357 \approx 6.36$



b $0.253 \approx 0.25$



c $9.999 \approx 10$



Second

Rounding Rule Strategy:

Ex. Round the following numbers:

- a $9.675 \approx$ (To the nearest whole number)
 b $6.24 \approx$ (To the nearest Tenth)
 c $56.839 \approx$ (To the nearest Hundredth)
 d $2.3565 \approx$ (To the nearest Thousandth)

Answer:

1 Select the digit in the place to be rounded.

a	b	c	d
9.675	6.24	56.839	2.3565

2 Replace the digits in the places that precede the previously selected digit with zeros.

a	b	c	d
9.675	6.24	56.839	2.3565
$\downarrow \downarrow \downarrow$	\downarrow	\downarrow	\downarrow
000	0	0	0

3 Look at the digit in the place preceding the place to be rounded directly.

If this digit is **0, 1, 2, 3, or 4**,
the number of the specified
place remains **unchanged**.

If this digit is **5, 6, 7, 8 or 9**,
we **add 1** to the number of
the specified place.

Ex. Round the following numbers to the nearest:

a	b	c	d
9.675	6.24	56.839	2.3565
$\downarrow \downarrow \downarrow$	\downarrow	$\downarrow \downarrow \downarrow$	$\downarrow \downarrow \downarrow$
10.000	6.20	56.840	2.3570
$9.675 \approx 10$	$6.24 \approx 6.2$	$56.839 \approx 56.84$	$2.3565 \approx 2.357$
(Whole number)	(Tenth)	(Hundredth)	(Thousandth)

4 Round each of the following numbers:

a $753.5 \approx 754$ (To the nearest whole number)

b $56.25 \approx 56.3$ (To the nearest Tenth)

c $63.78 \approx 60$ (To the nearest Ten)

d $782.475 \approx 782.48$ (To the nearest Hundredth)

e $956.285 \approx 1,000$ (To the nearest Hundred)

f $0.0396 \approx 0.04$ (To the nearest Thousandth)

5 Fill in the chart as you round each decimal to the stated place value:

	Number	Round to the Nearest Whole Number	Round to the Nearest Tenth	Round to the Nearest Hundredth
a	56.284	56	56.3	56.28
b	572.089	572	572.1	572.09
c	0.896	1	0.9	0.90
d	50.101	50	50.1	50.10



Quiz

10

1 Complete the following:

- a $23.567 \approx$ **24** (To the nearest whole number)
- b $59.483 \approx$ **59.5** (To the nearest Tenth)
- c $369.254 \approx$ **369.25** (To the nearest Hundredth)
- d $0.475 \approx$ **0** (To the nearest whole number)
- e $15.28 \approx$ **20** (To the nearest Ten)
- f $0.089 \approx$ **0.09** (To the nearest Hundredth)

2 Complete the following:

- a $3.159 \approx 3.2$ rounded to the nearest **Tenth**.
(Tenth or Hundredth or whole number or Ten)
- b $25.853 \approx 30$ rounded to the nearest **Ten**.
(Tenth or Hundredth or whole number or Ten)
- c $77.779 \approx 77.78$ rounded to the nearest **Hundredth**.
(Tenth or Hundredth or whole number or Ten)
- d $3.999 \approx 0$ rounded to the nearest **Ten**.
(Tenth or Hundredth or whole number or Ten)

Unit

1

Decimal Place Value and Computation

Concept

1.2

Adding and Subtracting Decimals

Lessons

6&7

Estimating Decimal Sums
Modeling Decimal Addition

Learning Objectives

By the end of these lessons, the student will be able to:

- Estimate sums of decimal numbers.
- Model decimal addition
- Apply strategies to add decimals to the Thousandths place.

Lessons

8-11

Modeling Subtracting Decimals
Estimating Decimal Differences
Subtracting to the Thousandths Place
Decimal Story Problems

Learning Objectives

By the end of these lessons, the student will be able to:

- Model decimal subtraction.
- Estimate differences of decimal numbers.
- Apply strategies to subtract decimals to the Thousandths place.
- Check the reasonableness of his/her answers.
- Add and subtract decimal numbers to the Thousandths place to solve story problems.



I ♥ Math



6&7

Estimating Decimal Sums Modeling Decimal Addition

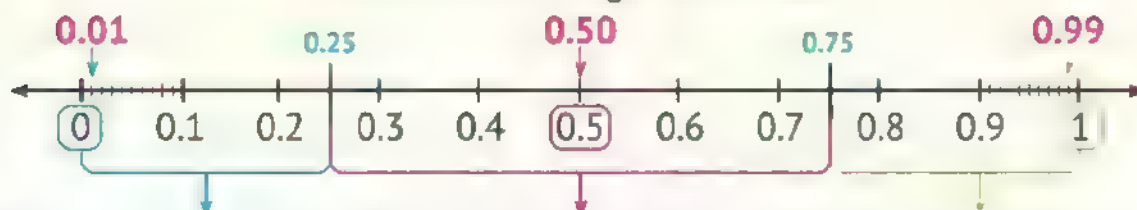
Learn

Estimating the Sum of Decimals

1 Benchmark Strategy:

The numbers (0, 0.5, and 1) are benchmark numbers.

Note the following number line:



There are decimals
close to zero
(0.1, 0.01, 0.001 ...)

There are decimals
close to 0.5
(0.25, 0.622, 0.51 ...)

There are decimals
close to the whole one
(0.75, 0.99, 0.999 ...)

Ex. Estimate the sum of the following using benchmark decimals:

a

$$0.65 + 0.456$$

$$\overset{\downarrow}{0.5} + \overset{\downarrow}{0.5} = 1$$

0.65 is close to 0.5

0.456 is close to 0.5

b

$$0.001 + 0.98$$

$$\overset{\downarrow}{0} + \overset{\downarrow}{1} = 1$$

0.001 is close to 0

0.98 is close to 1

c

$$0.55 + 0.9$$

$$\overset{\downarrow}{0.5} + \overset{\downarrow}{1} = 1.5$$

0.55 is close to 0.5

0.9 is close to 1

1 Estimate the sum of the following decimals using benchmark decimals:

a $0.89 + 0.533 \longrightarrow$ Estimate: $\dots\dots 1 \dots\dots + \dots\dots 0.5 \dots\dots = \dots\dots 1.5$

b $0.42 + 0.03 \longrightarrow$ Estimate: $\dots\dots 0.5 \dots\dots + \dots\dots 0 \dots\dots = \dots\dots 0.5$

c $0.612 + 0.021 \longrightarrow$ Estimate: $\dots\dots 0.5 \dots\dots + \dots\dots 0 \dots\dots = \dots\dots 0.5$

d $0.55 + 0.482 \longrightarrow$ Estimate: $\dots\dots 0.5 \dots\dots + \dots\dots 0.5 \dots\dots = \dots\dots 1$

Ex.
a

$$\begin{aligned}
 &75.15 + 21.95 \\
 &= 75 + 0.15 + 21 + 0.95 \\
 &= 75 + 0 + 21 + 1 \\
 &= 97
 \end{aligned}$$

0.15 is close to 0
0.95 is close to 1

b

$$\begin{aligned}
 &32.987 + 15.482 \\
 &= 32 + 0.987 + 15 + 0.482 \\
 &= 32 + 1 + 15 + 0.5 \\
 &= 48.5
 \end{aligned}$$

0.987 is close to 1
0.482 is close to 0.5

Note!

- We can separate whole and parts before using benchmark decimals.

2 Estimate the following sums (Using Benchmark Decimals):

- a** $5.95 + 21.002 = \dots 5 \dots + 0.95 \dots + 21 \dots + 0.002 \dots$
 $\longrightarrow \dots 5 \dots + \dots 1 \dots + 21 \dots + \dots 0 \dots = \dots 27 \dots$
- b** $6.552 + 82.495 = \dots 6 \dots + 0.552 \dots + 82 \dots + 0.495 \dots$
 $\longrightarrow \dots 6 \dots + 0.5 \dots + 82 \dots + 0.5 \dots = 89 \dots$
- c** $12.954 + 3.45 = \dots 12 \dots + 0.954 \dots + 3 \dots + 0.45 \dots$
 $\longrightarrow \dots 12 \dots + \dots 1 \dots + 3 \dots + 0.5 \dots = 16.5 \dots$

2 Rounding Strategy:

EX. Estimate the sum $23.845 + 58.538$ using rounding strategy:

$$\begin{aligned}
 23.845 + 58.538 &\begin{cases} 23.85 + 58.54 = 82.39 \text{ (To the nearest Hundredths)} \\ 23.8 + 58.5 = 82.3 \text{ (To the nearest Tenths)} \\ 24 + 59 = 83 \text{ (To the nearest Ones)} \\ 20 + 60 = 80 \text{ (To the nearest Tens)} \end{cases}
 \end{aligned}$$

The actual sum: $23.845 + 58.538 = 82.383$

Note!

- Rounding to the lowest place value is the closest estimate to the actual sum.

3 Estimate the sum of the following decimals (Using Rounding Strategy):

a $2.3 + 3.7$ → Estimate: $2 + 4 = 6$

b $3.451 + 8.091$ → Estimate: $3.45 + 8.09 = 11.54$

c $9.98 + 4.56$ → Estimate: $10 + 4.6 = 14.6$

d $4.9817 + 5.0192$ → Estimate: $4.982 + 5.019 = 10.001$

4 Taha has 54.26 LE. His brother has 45.75 LE. They want to combine their money to purchase 4 kilograms of apples for 100 LE. Estimate to see if they have enough money.

Estimate: $54 + 46 = 100$

Yes, they have enough money.

Modeling Decimal Addition

First:

The Decimal Model

Represent each of the two decimals with different colors, their sum is the number of squares of both colors.

Second:

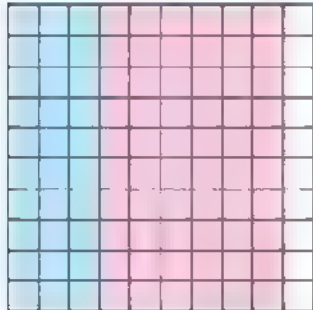
The Place Value Chart

Write the numbers in the place value chart and add.



Ex. a $0.3 + 0.6$

Use the model



$$0.3 + 0.6 = 0.9$$

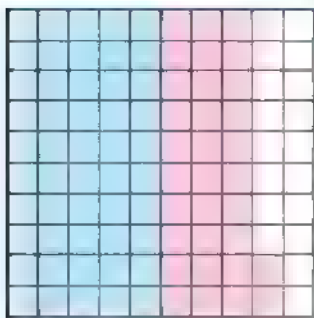
Use the place value chart

Whole Number			Decimal Point	Decimals	
Ones					
H	T	O		Tenths	Hundredths
		0	.	3	
		0	.	6	
		0	.	9	

$$\begin{array}{r} 0.3 \\ + 0.6 \\ \hline 0.9 \end{array}$$

b $0.5 + 0.32$

Use the model



$$0.5 + 0.32 = 0.82$$

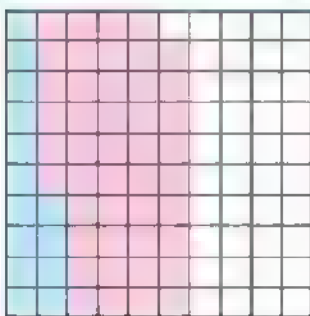
Use the place value chart

Whole Number			Decimal Point	Decimals	
Ones					
H	T	O		Tenths	Hundredths
		0	.	5	
		0	.	3	2
		0	.	8	2

$$\begin{array}{r} 0.5 \\ + 0.32 \\ \hline 0.82 \end{array}$$

c $0.45 + 0.14$

Use the model



$$0.14 + 0.45 = 0.59$$

Use the place value chart

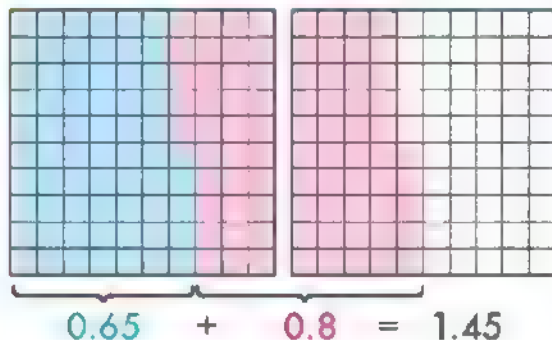
Whole Number			Decimal Point	Decimals	
Ones					
H	T	O		Tenths	Hundredths
		0	.	1	4
		0	.	4	5
		0	.	5	9

$$\begin{array}{r} 0.14 \\ + 0.45 \\ \hline 0.59 \end{array}$$

Number Sense and Operations

d $0.65 + 0.8$

Use the model



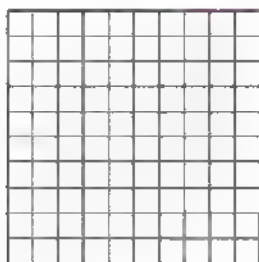
Use the place value chart

Whole Number			Decimal Point	Decimals	
Ones					
H	T	O		Tenths	Hundredths
		0	.	6	5
		0	.	8	
		1	.	4	5

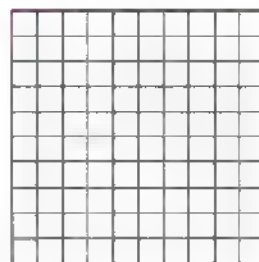
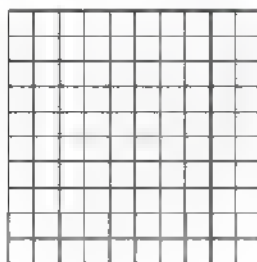
$$\begin{array}{r} 0.65 \\ + 0.8 \\ \hline 1.45 \end{array}$$

5 Use the following decimal models to find the result:

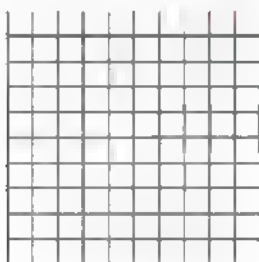
a $0.4 + 0.3 = \dots \mathbf{0.7} \dots$



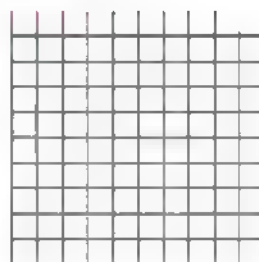
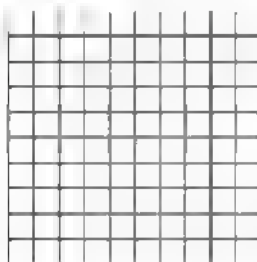
d $0.8 + 0.72 = \dots \mathbf{1.52} \dots$



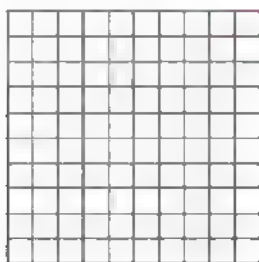
b $0.5 + 0.25 = \dots \mathbf{0.75} \dots$



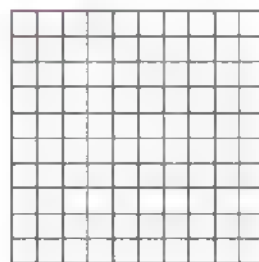
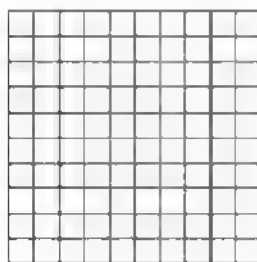
e $0.68 + 0.75 = \dots \mathbf{1.43} \dots$



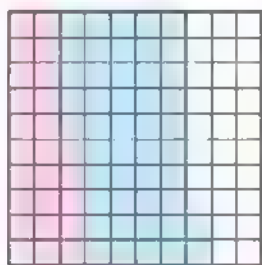
c $0.28 + 0.15 = \dots \mathbf{0.43} \dots$



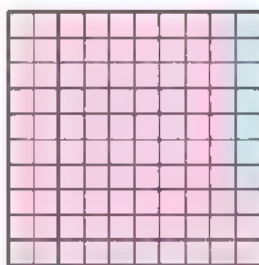
f $0.85 + 0.78 = \dots \mathbf{1.63} \dots$



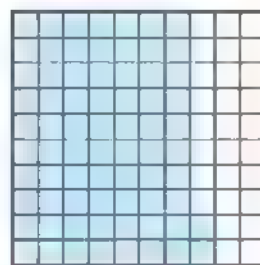
- 6 Write an expression to match the models. Write an addition problem, and then find the result:



a $0.25 + 0.47 = 0.72$



b $0.93 + 0.79 = 1.72$



- 7 Use the place value chart to find the sum:

Ex. $32.78 + 8.891 = 41.671$

Whole Number			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
	3	2	.	7	8	
		8	.	8	9	1
	4	1	.	6	7	1

a $0.8 + 3.09 = 3.89$

Whole Number			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
		0	.	8		
		3	.	0	9	
		3	.	8	9	

b $0.245 + 3.89 = 4.135$

Whole Number			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
		0	.	2	4	5
		3	.	8	9	
		4	.	1	3	5

c $4.028 + 2.83 = 6.858$

Whole Number			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
		4				
		2	.	0	2	8
		6	.	8	3	
		6	.	8	5	8

d $125.36 + 3.08 = 128.44$

Whole Number			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
1	2	5	.	3	6	
		3	.	0	8	
1	2	8	.	4	4	

e $45.562 + 189.158 = 234.72$

Whole Number			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
	4	5				
			.	5	6	2
1	8	9	.	1	5	8
2	3	4	.	7	2	0

Adding Decimals

Ex. $345.2 + 2.893$

Vertically:

Arrange the digits correctly, so that the decimal point is under the decimal point, the **Ones** under the **Ones**, and the **Hundreds** under the **Hundreds**, and so on, and then add.

(Empty spaces can be filled with zeros)

$$\begin{array}{r} 345.200 \\ + 2.893 \\ \hline 348.093 \end{array}$$

Horizontally: $345.200 + 2.893 = 248.093$

8 Add:

a
$$\begin{array}{r} 45.368 \\ + 2.758 \\ \hline 48.126 \end{array}$$

b
$$\begin{array}{r} 0.358 \\ + 34.19 \\ \hline 34.548 \end{array}$$

c
$$\begin{array}{r} 45.98 \\ + 125.3 \\ \hline 171.28 \end{array}$$

d $36.89 + 4.5 = 41.39$

e $58 + 3.89 = 61.89$

9 Complete: (As in the example)

Ex. 25 Thousandths + 6 Hundredths = 85 Thousandths.

$$\begin{array}{r} 25 \text{ Thousandths} + 60 \text{ Thousandths} = 85 \text{ Thousandths} \\ (0.025 + 0.060 = 0.085) \end{array}$$

a 3 Thousandths + 4 Thousandths = 7 Thousandths

b 7 Thousandths + 4 Thousandths = 11 Thousandths

c 39 Thousandths + 5 Thousandths = 44 Thousandths

d 3 Hundredths + 99 Thousandths = 129 Thousandths

- 10 Diaa travels from Cairo to Alexandria and stops to rest in Tanta. If the distance between Cairo and Tanta is 92.61 km and the distance between Tanta and Alexandria is 147.7 km, what is the distance traveled by Diaa?

$$92.61 + 147.7 = 240.31 \text{ km}$$

Quiz

10

- 1 Complete the following:

- a Estimate: $0.9 + 0.2 \longrightarrow \dots 1 \dots + \dots 0 \dots = \dots 1 \dots$ (Benchmark Strategy)
- b Estimate: $3.24 + 12.55 \longrightarrow \dots 3.2 \dots + 12.6 \dots = \dots 15.8 \dots$ (To the nearest Tenth)
- c Estimate: $55.758 + 36.964 \longrightarrow 55.76 + 36.96 = 92.72$ (to the nearest Hundredth)
- d 5 Thousandths + 12 Thousandths = 17 Thousandths

- 2 Use the place value chart find the sum of $32.158 + 209.574$:

Whole Number			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
	3	2	.	1	5	8
2	0	9	.	5	7	4
The sum	2	4	.	7	3	2

Modeling Subtracting Decimals – Estimating Decimal Differences – Subtracting to the Thousandths Place – Decimal Story Problems

Modeling Decimal Subtraction

First:

The Decimal Model

Represent the greatest decimal fraction on the model, and then remove the squares of the smaller decimal fraction.

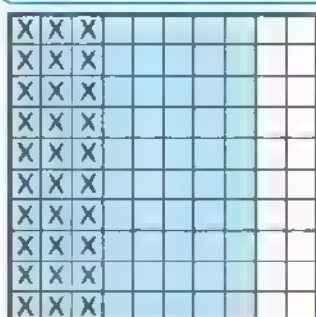
Second:

The Place Value Chart

Write the numbers in the place value chart and then **subtract**.

Ex. a $0.8 - 0.3$

Use the model



$$0.8 - 0.3 = 0.5$$

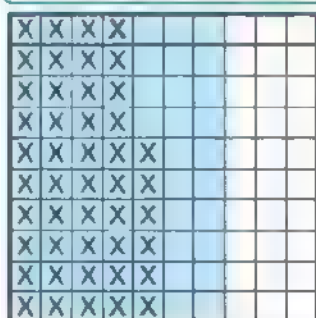
Use the place value chart

Whole Number			Decimal Point	Decimals	
Ones					
H	T	O		Tenths	Hundredths
		0	.	8	
		0	.	3	
		0	.	5	

$$\begin{array}{r} 0.8 \\ - 0.3 \\ \hline 0.5 \end{array}$$

b $0.7 - 0.46$

Use the model



$$0.7 - 0.46 = 0.24$$

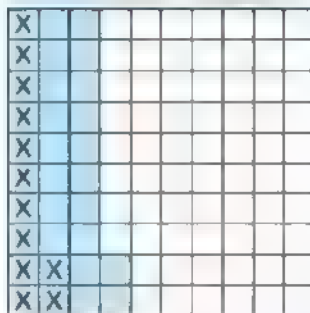
Use the place value chart

Whole Number			Decimal Point	Decimals	
Ones					
H	T	O		Tenths	Hundredths
		0	.	7	
		0	.	4	6
		0	.	2	4

$$\begin{array}{r} 0.7 \\ - 0.46 \\ \hline 0.24 \end{array}$$

c $0.32 - 0.12$

Use the model



$0.32 - 0.12 = 0.20$

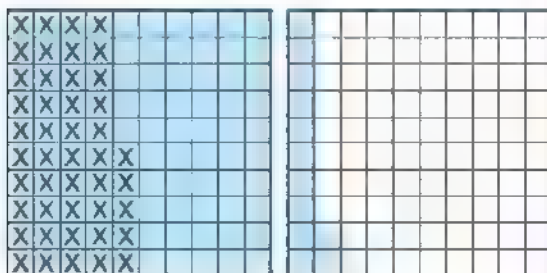
Use the place value chart

Whole Number			Decimal Point	Decimals	
Ones					
H	T	O		Tenths	Hundredths
		0	.	3	2
		0	.	1	2
		0	.	2	0

$$\begin{array}{r} 0.32 \\ - 0.12 \\ \hline 0.20 \end{array}$$

d $1.12 - 0.45$

Use the model



$1.12 - 0.45 = 0.67$

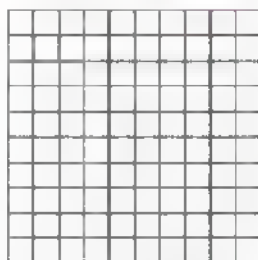
Use the place value chart

Whole Number			Decimal Point	Decimals	
Ones					
H	T	O		Tenths	Hundredths
		1	.	1	2
		0	.	4	5
		0	.	6	7

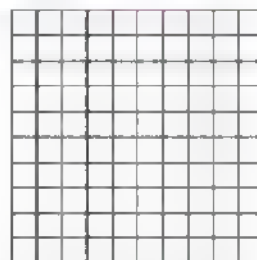
$$\begin{array}{r} 1.12 \\ - 0.45 \\ \hline 0.67 \end{array}$$

1 Use the decimal models to find the result:

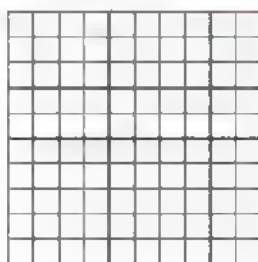
a $0.5 - 0.2 = \dots 0.3 \dots$



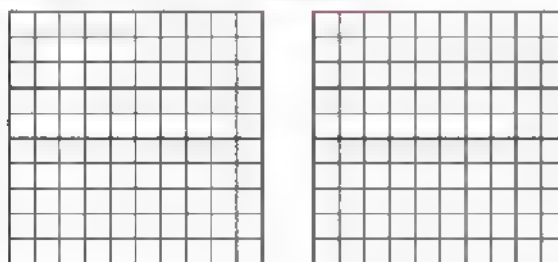
b $0.8 - 0.35 = \dots 0.45 \dots$



c $0.28 - 0.15 = \dots 0.13 \dots$

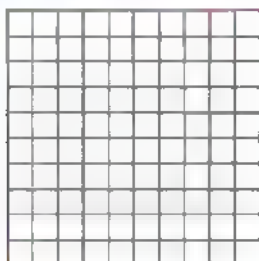


d $1.08 - 0.66 = \dots 0.42 \dots$

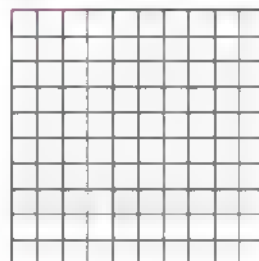
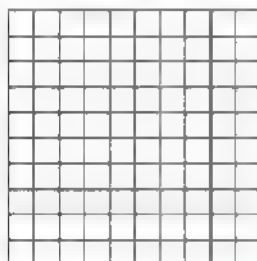


Number Sense and Operations

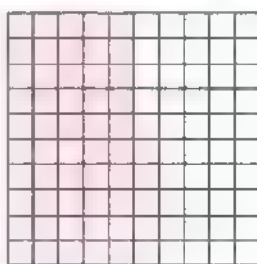
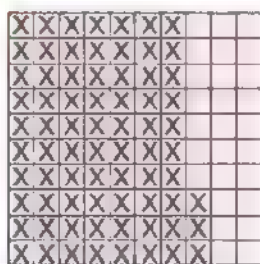
e $0.58 - 0.4 = \dots \mathbf{0.18} \dots$



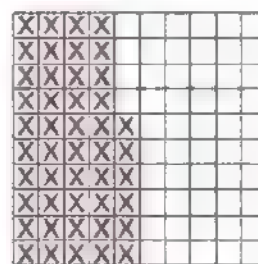
f $1.15 - 0.52 = \dots \mathbf{0.63} \dots$



2 Write an expression to match the models. Write a subtraction problem, and then find the result:



a $1.55 - 0.73 = \mathbf{0.82}$



b $0.46 - 0.46 = \mathbf{0}$

3 Use the place value charts to find the difference:

Ex. $24.8 - 7.245 = 17.555$

Whole Number			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
	2	4	.	8		
		7	.	2	4	5
	1	7	.	5	5	5

a $12.8 - 3.09 = \mathbf{9.71}$

Whole Number			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
	1	2	.	8		
		3	.	0	9	
		9	.	7	1	

b $9.245 - 0.86 = \mathbf{8.385}$

Whole Number			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
		9				
		0	.	8	6	
		8	.	3	8	5

c $8.027 - 0.8 = \mathbf{7.227}$

Whole Number			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
		8	.	0	2	7
		0	.	8		
		7	.	2	2	7

d $142.37 - 4.08 = 138.29$

Whole Number			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
1	4	2				
		4	.	0	8	
1	3	8	.	2	9	

e $250.9 - 9.245 = 241.655$

Whole Number			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
2	5	0				
		9	.	2	4	5
2	4	1	.	6	5	5

Subtracting Decimals

Ex. $48.3 - 5.245$

Vertically:

Arrange the digits correctly, so that the decimal point is under the decimal point, the **Ones** under the **Ones**, and the **Hundreds** under the **Hundreds**, and so on, and then subtract.

(Empty spaces can be filled with zeros)

Horizontally: $48.300 - 5.245 = 43.055$

$$\begin{array}{r}
 48.300 \\
 - 5.245 \\
 \hline
 43.055
 \end{array}$$

4 Subtract:

a $75.48 - 7.082$

68.398

b $30 - 5.17$

24.83

c $102.002 - 12.347$

89.655

d $82.82 - 45 = 37.82$

e $58 - 8.079 = 49.921$

5 Complete: (As in the example)

Ex. $75 \text{ Thousandths} - 3 \text{ Hundredths} = 45 \text{ Thousandths}$

$$\begin{array}{l}
 75 \text{ Thousandths} + 30 \text{ Thousandths} = 45 \text{ Thousandths} \\
 (0.075 + 0.030 = 0.045)
 \end{array}$$

Number Sense and Operations

- a 45 Thousandths $- 12$ Thousandths $= 33$ Thousandths
b 5 Hundredths $- 13$ Thousandths $= 37$ Thousandths
c 4 Tenths $- 75$ Thousandths $= 325$ Thousandths
d 214 Thousandths $- 18$ Hundredths $= 34$ Thousandths

Learn

Estimating Decimal Differences

1 Benchmark Decimals Strategy:

Ex. Estimate the following using Benchmark Decimals:

a $0.65 - 0.456 \rightarrow 0.5 - 0.5 = 0$

0.65 is close to 0.5
 0.456 is close to 0.5

b $0.98 - 0.001 \rightarrow 1 - 0 = 1$

0.98 is close to 1
 0.001 is close to 0

6 Estimate the difference of the following decimals:

a $0.89 - 0.533 \rightarrow$ Estimate: $1 - 0.5 = 0.5$

b $0.42 - 0.03 \rightarrow$ Estimate: $0.5 - 0 = 0.5$

c $0.612 - 0.021 \rightarrow$ Estimate: $0.5 - 0 = 0.5$

d $0.55 - 0.482 \rightarrow$ Estimate: $0.5 - 0.5 = 0$

2 Rounding Strategy:

Ex. Estimate the difference using rounding strategy:

$$58.538 - 23.845$$

(To the nearest Hundredths)

$$= 58.54 - 23.85 = 34.69$$

7 Estimate the difference of the following decimals:

(Use Rounding to the lowest place value Strategy)

a $8.34 - 3.43 \rightarrow$ Estimate: $8.3 - 3.4 = 4.9$

b $345.1 - 80.91 \rightarrow$ Estimate: $345 - 80.9 = 264.1$

c $7.21 - 4.56 \rightarrow$ Estimate: $7.2 - 4.6 = 2.6$

d $0.981 - 0.089 \rightarrow$ Estimate: $0.98 - 0.09 = 0.89$

- 8 The width of the Tahya Misr Bridge, which connects northern and eastern Cairo to western Cairo across the Nile River, is 67.3 meters, and the Jiaxing-Shaoxing Sea Bridge in Japan is less in width than the Tahya Misr Bridge by 11.7 meters. How wide is the Jiaxing-Shaoxing Sea Bridge?

$$67.3 - 11.7 = 55.6 \text{ m}$$

- 9 Rashad and his father went fishing. Each of them caught a giant fish, the mass of the first fish was 53.25 kilograms, and the mass of the other fish reached 46.8 kilograms. What is the mass of the two fish together?

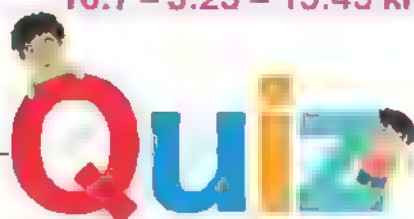
$$53.25 + 46.8 = 100.05 \text{ km}$$

- 10 The length of the Tahya Misr Bridge is 16.7 km. If Ramy travels along the length of the Tahya Misr Bridge and then returns this distance again, how many kilometers in total does he travel?

$$16.7 + 16.7 = 33.4 \text{ km}$$

- 11 Sami rides his bike along the Tahya Misr Bridge walkway, which is 16.7 kilometers long. He rode 3.25 kilometers. How many kilometers does he still need to ride to reach the end of the bridge?

$$16.7 - 3.25 = 13.45 \text{ km}$$



10

- 1 Complete the following:

a $25.82 - 12 = 13.82$ (25.70 or 24.62 or 13.82 or 15.8)

b $36.36 - 6.3 = 30.06$ (30.06 or 35.73 or 42.66 or 30.33)

c 45 Hundredths - 12 Thousandths = 438 Thousandths (33 or 57 or 438 or 462)

d Estimate: $8.34 - 3.43 \rightarrow 5$ (Benchmark) (5 or 5.5 or 4 or 4.5)

- 2 Subtract:

a
$$\begin{array}{r} 326.578 \\ - 122.244 \\ \hline 204.334 \end{array}$$

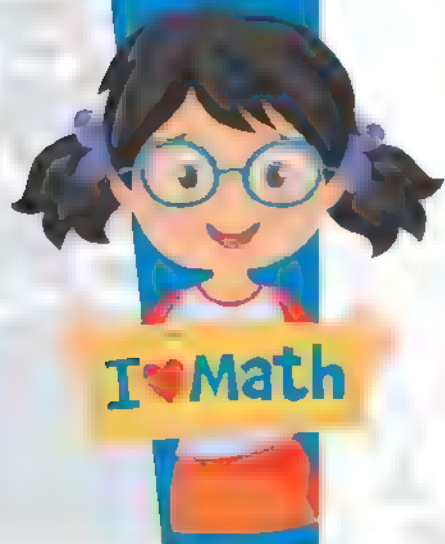
b
$$\begin{array}{r} 68.367 \\ - 2.455 \\ \hline 65.912 \end{array}$$

c
$$\begin{array}{r} 84 \\ - 12.592 \\ \hline 71.408 \end{array}$$

Unit

2

Number Relationships



Concept 2.1

Expressions, Equations, and the Real World

Lesson 1

Expressions, Equations, and Variables

Learning Objectives

By the end of this lesson, the student will be able to:

- Explain the difference between expressions and equations.
- Explain why there might be an unknown in an expression or equation.
- Use letters or symbols to represent unknowns in expressions and equations.

Lessons 2&3

Variables in Equations Telling Stories with Numbers

Learning Objectives

By the end of these lessons, the student will be able to:

- Apply the relationship between addition and subtraction to find the value of the unknown in an equation.
- Write story problems involving addition and subtraction of decimal numbers
- Solve equations involving decimal numbers to the Thousandths place.

$$6 + 4 = \text{balloon}$$



$$5 - 1 = \text{balloon}$$



Lesson

Expressions, Equations, and Variables

Variable
It's a letter or symbol that represents the **unknown value** in an equation,
such as: x, y, z, \dots

Expression
It's a set of fixed numbers and variables that line up next to each other,
such as: $x + 5, 3 \times y$

Equation
It's a mathematical sentence that includes an equal relationship between two mathematical sentences,
such as: $5 + x = 9, y = 5 \times 3$

- 1 Put a tick (✓) to classify the following mathematical sentences into “Equation” or Mathematical Expression” or “Other”:

		Equation	Mathematical Expression	Other
a	$4.7 + 3.6 = m$	✓		
b	$6.4 + 3.2 + 8$		✓	
c	$56 - x = 47.5$	✓		
d	$3.4 + L$		✓	
e	Aya ran 8 km last week.			✓
f	$3.5 + 2.456 = 2.5 + 3.456$	✓		
g	$37.125 - 13.7$		✓	
h	Amir had 3.5 kg of apples.			✓

Learn

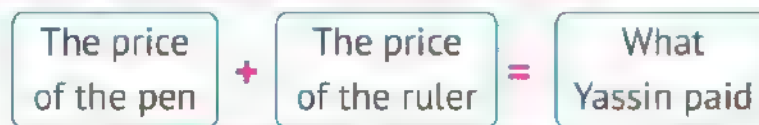
Using Letters or Symbols to Represent Unknown Values in Mathematical Expressions and Equations

Ex.

Yassin bought a pen and a ruler. He paid 14.5 pounds for them. If the price of the pen is 6.25 pounds, what is the price of the ruler?

Write an equation to represent the price of the ruler.

The previous example can be expressed as follows:



What Yassin paid = 14.5 pounds.

The price of the pen = 6.25 pounds.

The price of the ruler is unknown.

$$6.25 + \text{unknown} = 14.5$$

- Replace the word unknown with one of the letters (a variable) "y".
- So, the equation that represents the price of the ruler is:

$$6.25 + y = 14.5 \quad \text{or} \quad y = 14.5 - 6.25$$

2 Read the following story problems. Make an equation for each problem:

- a Ahmed had 25.15 pounds, and he bought a toy for 14.5 pounds. How much money is left with Ahmed?

$$w = 25.15 - 14.5$$

$$w = 10.65$$

- b A class in a school has 45 students. 28 of them are girls. How many boys are there in this class?

$$y = 45 - 28$$

$$y = 17$$

- Ⓒ A farm had 4,200 chickens. 3,350 chickens were sold in a week.
How many chickens are left on the farm?

$$m = 4,200 - 3,350$$

$$m = 850$$

- Ⓓ Ahmed bought a car for 90,990 pounds and bought a house for his family for 750,250 pounds.

How much did Ahmed spend to buy the car and the house?

$$a = 750,250 + 90,990$$

$$a = 841,240$$



10

1 Find the result:

- Ⓐ $2.8 + 0.2 = b$ is a/an _____. (equation or mathematical expression or other)
 Ⓑ $9.7 + n$ is a/an _____. (equation or mathematical expression or other)
 Ⓒ Ali has 75 LE is a/an _____. (equation or mathematical expression or other)

2 Mai has 38 LE. She spent 23 LE.

How much money does she have now? (Make an equation to solve)

$$A = 38 - 23$$

$$A = 15$$

4 A group of 12 children, 7 of them are girls.

What is the number of boys in this group?

(Make an equation to solve)

$$B = 12 - 7$$

$$B = 5$$

Lessons Variables in Equations Telling Stories with Numbers

Determining the Value of the Unknown

You can use mental math to determine the value of the (unknown) variable in the equation.

Ex. Find the value of (a) in each of the following:

$$0.5 + a = 0.9$$

$$a = 0.9 - 0.5$$

$$a = 0.4$$

$$a + 0.2 = 1.7$$

$$a = 1.7 - 0.2$$

$$a = 1.5$$

$$8.5 - a = 2.3$$

$$a = 8.5 - 2.3$$

$$a = 6.2$$

$$a - 2.4 = 3.5$$

$$a = 2.4 + 3.5$$

$$a = 5.9$$

1 Use mental math to estimate the equations, and then solve them:

a $8.235 + p = 10.224$

$$p = 10.224 - 8.235$$

$$p = 1.989$$

b $t - 2.445 = 0.26$

$$t = 2.445 + 0.26$$

$$t = 2.705$$

c $6.82 - h = 1.023$

$$h = 6.82 - 1.023$$

$$h = 5.797$$

d $v + 42.809 = 100.01$

$$v = 100.01 - 42.809$$

$$v = 57.201$$

e $5.52 + 2.041 + m = 9.271$

$$m = 9.271 - (5.52 + 2.041)$$

$$m = 9.271 - 7.561, m = 1.71$$

f $2.377 + 3.1 = 1.52 + a$

$$a = 6.477 - 1.52$$

$$a = 3.957$$

Ex.

Write a story problem for the following equation, then solve it:

$$53.5 + m = 92.7$$

Answer

Bassem takes the bus from Cairo to Tanta. The distance is 92.7 km. The bus stops 53.5 km away in the city of Banha to take more passengers. How far is Banha from Tanta?

$$53.5 + m = 92.7 \quad \text{Then } m = 92.7 - 53.5$$

$$m = 39.2$$

(The distance is 39.2 km)

2 Write a story problem representing each equation, and then solve it:

a $x + 2.75 = 12.5$

Mark bought a pen for 2.75 L.E and bought a pencil. if Mark paid 12.5 L.E, What is the price of pencil

"Many answers may be written"

$$X = 12.5 - 2.75 = 9.75 \text{ L.E}$$

b $34.750 - s = 15.25$

Ibrahim has 34.750 L.E, He bought a book and the remainder money with him is 15.25 L.E, what is the price of the book

"Many answers may be written"

$$S = 34.750 - 15.25 = 19.5 \text{ L.E}$$

Quiz

10

1 Complete the following:

a If $3.7 + m = 5.2$, then $m = 5.2 - 3.7$

$m = 1.5$

b If $h - 3.2 = 4.89$, then $h = 4.89 + 3.2$

$h = 8.09$

c If $9.9 - a = 3.6$, then $a = 9.9 - 3.6$

$a = 6.3$

2 Choose the correct answer:

a If $2.1 + 1.6 + c = 5$, then $c = 1.3$. (1.7 or 0.7 or 8.7 or **1.3**)

b If $6.5 - 2.4 = n + 3$, then $n = 1.1$.
(7.1 or **1.1** or 8.9 or 11.9)

3 Write a story problem representing the equation ($a - 15 = 12$).
Then solve it :

$a = 12 + 15$

$a = 27$ LE

Unit

2

Number Relationships

Concept

2.2

Factors and Multiples

Lesson

4

Prime Factorization

Learning Objective:

By the end of this lesson, the student will be able to:

- Use a factor tree to identify the prime factors of a given number.

Lesson

5

Greatest Common Factors (GCF)

Learning Objectives:

By the end of this lesson, the student will be able to:

- Use factor trees to identify common factors of two whole numbers.
- Use factor trees to identify the greatest common factor of two whole numbers.

Lessons

6&7

Identifying Multiples

Least Common Multiple (LCM)

Learning Objectives:

By the end of these lessons, the student will be able to:

- Explain the meaning of multiples.
- Identify common multiples of two whole numbers up to 12
- Explain the meaning of least common multiple.
- Identify the least common multiple of two whole numbers up to 12.

Lesson

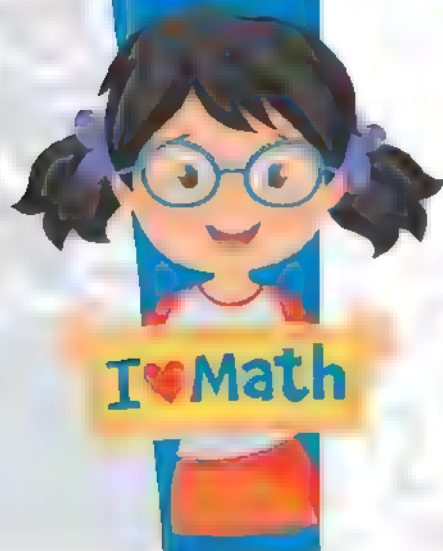
8

Factors or Multiples?

Learning Objectives:

By the end of this lesson, the student will be able to:

- Explain the difference between factors and multiples.
- Identify the greatest common factor and least common multiple of two given numbers.



Lesson

Prime Factorization

Factors

Factors are the numbers that are multiplied to form a **product**.

Or the factor of a number divides the number **equally** without a remainder.

$$\begin{array}{ccccccc} 4 & \times & 5 & = & 20 \\ \downarrow & & \downarrow & & \downarrow \\ \text{Factor} & & \text{Factor} & & \text{Product} \end{array}$$

Methods for Finding the Factors of a Number

Factor T-chart

18	
1	18
2	9
3	6

Factor Rainbow



Factor Tree



Notes:

- **2** is a factor of all even numbers, whose Ones digit is 0, 2, 4, 6, or 8.
- **3** is a factor of numbers, whose sum of digits is divisible by 3 without a remainder.
- **5** is a factor of numbers, whose Ones digit is 0 or 5.
- **Prime number**: Is a number greater than one and has only **two** factors, one and the number itself.
- All prime numbers are **odd, except 2**.
- The smallest prime number is **2**.

- The only **even prime** number is **2**.
- The smallest odd prime number is **3**.
- **1** is neither a prime number nor a composite number.
- **Prime numbers less than 100** are:
2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47,
53, 59, 61, 67, 71, 73, 79, 83, 89, 97
- Any number is a factor and a multiple of itself.

Exercises

Prime Factors

Prime Factorization:

It means writing the composite number as the product of prime numbers.

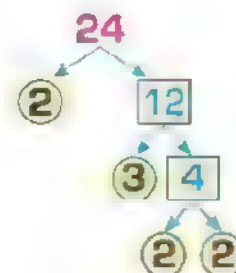
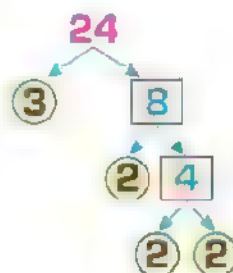
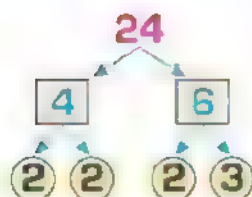
Ex. $8 = 2 \times 2 \times 2$, $12 = 3 \times 2 \times 2$, $15 = 3 \times 5$

Prime Factorization Using a Factor Tree

Ex. Factorize **24** into its prime factors:

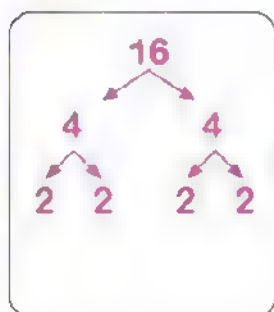
- 1 Choose two numbers whose **product** is 24 (1 should not be used).
- 2 Circle the prime numbers and leave them, then continue factorizing the composite numbers.
- 3 Stop when all numbers become **prime numbers**.

Note that: All of the following are true, and we get the same result:
 $24 = 2 \times 2 \times 2 \times 3$



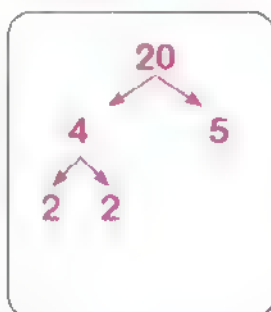
1 Factorize each number into its prime factors using the factor tree:

a 16



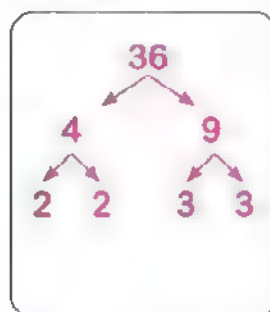
$$16 = 2 \times 2 \times 2 \times 2$$

b 20



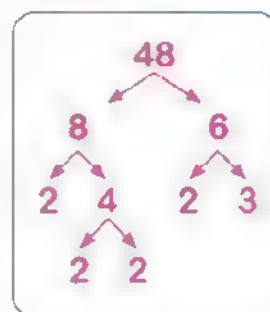
$$20 = 5 \times 2 \times 2$$

c 36



$$36 = 2 \times 2 \times 3 \times 3$$

d 48



$$48 = 2 \times 3 \times 2 \times 2 \times 2$$

Quiz

10

1 Complete the following:

- a The smallest prime number is 2.
- b The smallest odd prime number is 3.
- c The prime factors of 30 are 2, 3, 5.

2 Complete the diagram:

$$18 = 2 \times 3 \times 3$$



3 Choose the correct answer:

- a The number whose prime factors 2, 2, 3 is 12.
(7 or 12 or 10 or 6)
- b The number whose prime factors 3, 5, 2 is 30.
(10 or 17 or 13 or 30)

Lesson

Greatest Common Factors (GCF)

Notes: Methods for Factorizing Numbers into their Prime Factors

Ex. Factorize 30 into its prime factors:

1 Factor Tree:

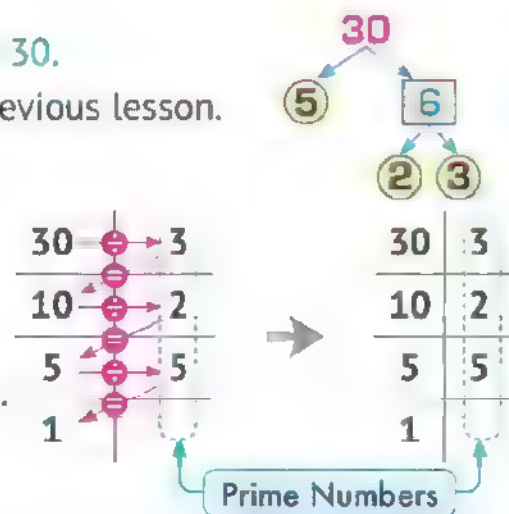
- Choose two numbers whose product is 30.
- Complete the factorization as in the previous lesson.

$$30 = 2 \times 3 \times 5$$

2 Repeated Division:

- Divide by one of the prime factors of a number.
- Keep dividing by another prime factors.
- Stop when the quotient becomes 1.

$$30 = 2 \times 3 \times 5$$



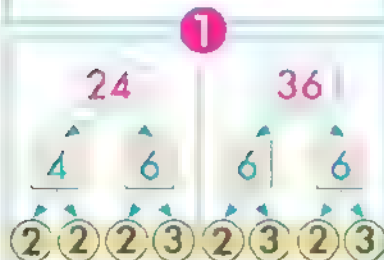
Determining the Greatest Common Factor of Two Numbers Using Prime Factors

Ex. Find the GCF for 24 and 36.

Factorize both numbers into their prime factors.

Write the prime factors of both numbers, so that the similar factors are on top of each other.

- For every two same factors, we get a factor.
- The product of these factors is the greatest common factor.



$$24 = 2 \times 2 \times 2 \times 3$$

$$36 = 2 \times 2 \times 3 \times 3$$

$$\text{GCF} =$$

$$24 = 2 \times 2 \times 2 \times 3$$

$$36 = 2 \times 2 \times 3 \times 3$$

$$\text{GCF} = 2 \times 2 \times 3 = 12$$

So, the GCF for 36 and 24 is 12.

Number Sense and Operations

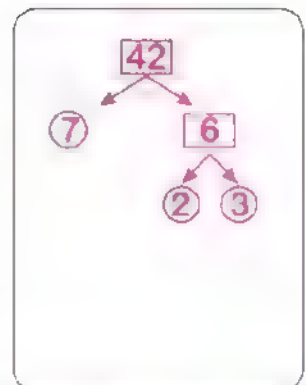
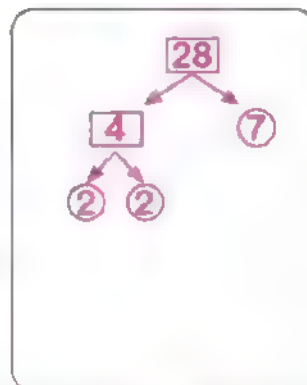
1 Find the **GCF** of each of the following:

a 28, 42

$$28 = 2 \times 2 \times 7$$

$$42 = 2 \times 3 \times 7$$

$$\text{GCF} = 2 \times 7 = 14$$

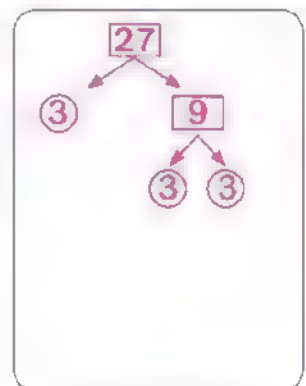
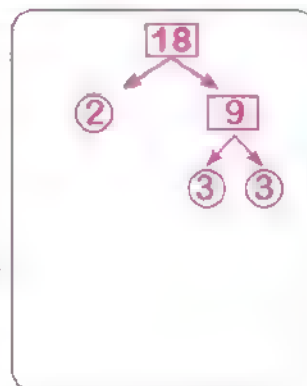


b 18, 27

$$18 = 3 \times 3 \times 2$$

$$27 = 3 \times 3 \times 3$$

$$\text{GCF} = 3 \times 3 = 9$$

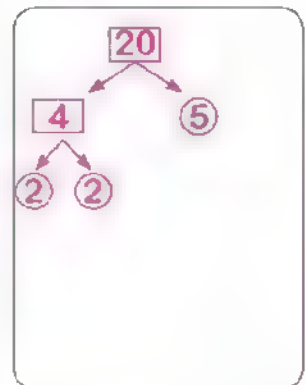
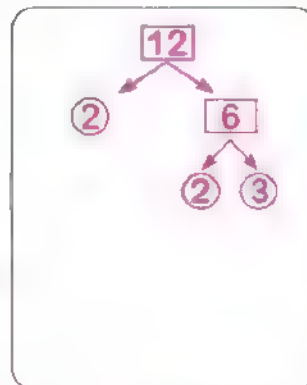


c 12, 20

$$12 = 2 \times 2 \times 3$$

$$20 = 2 \times 2 \times 5$$

$$\text{GCF} = 2 \times 2 = 4$$

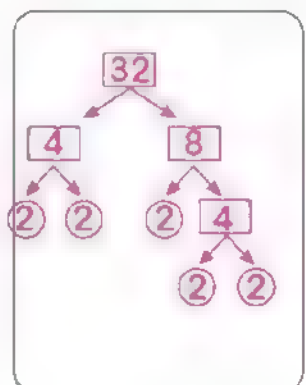
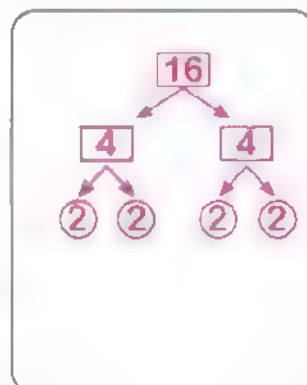


d 16, 32

$$16 = 2 \times 2 \times 2 \times 2$$

$$32 = 2 \times 2 \times 2 \times 2 \times 2$$

$$\text{GCF} = 2 \times 2 \times 2 \times 2 = 16$$



- 2 There are 15 boys and 20 girls in a classroom. The teacher wants to divide the class into the greatest equal groups, so that the numbers of boys and girls are equal in all groups.

(Use the greatest common factor)

$$\text{GCF} = 5$$

Greatest number of equal groups = 5 groups.

Quiz

10

- 1 Choose the correct answer:

- a The GCF of 3 and 6 is 3. (3 or 6 or 18 or 2)
- b The GCF of 4 and 6 is 2. (6 or 10 or 2 or 24)
- c 1 is a factor for all numbers. (1 or 0 or 100 or 2)

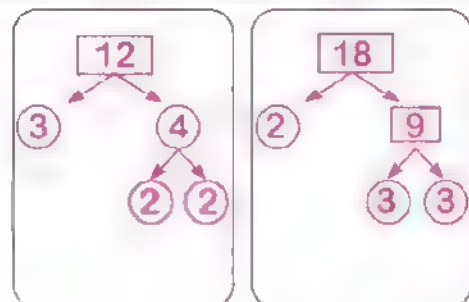
- 2 Find the GCF of the two numbers

12 and 18

$$12 = 2 \times 2 \times 3$$

$$18 = 2 \times 3 \times 3$$

$$\text{GCF} = 2 \times 3 = 6$$



- 3 There are 20 red apples and 15 green apples. What is the largest number of groups in which the apples can be divided so that each group contains the same number of red apples and the same number of green apples?

$$20 = 2 \times 2 \times 5$$

$$15 = 5 \times 3$$

$$\text{GCF} = 5$$

Lessons Identifying Multiples Least Common Multiple (LCM)

Multiple of a number:

It is the **product** we get when we multiply a certain number by another number.

How to Find the Multiples of a Number

Count by Jumping
on the Number Line

Use the Hundred
Chart

Use Multiplication
Facts

- Zero (0) is the **common multiple** of all numbers.
- All numbers are multiples of 1.
- Multiples of numbers are **infinite**.
- Each number is a multiple of **itself**.
- The product of any two numbers is a **common multiple** of them.

For example: $35 = 5 \times 7$, so 35 is a common multiple of 7 and 5.

EX. Find the **common multiples** of 3 and 4.

- The multiples of 3 are: 0, 3, 6, 9, 12, 15, 18, 21, 24,
- The multiples of 4 are: 0, 4, 8, 12, 16, 20, 24, 28, 32,
- Common multiples are: 0, 12, 24, ... (Other answers are available)

EX. Find the **common multiples** of 12, and 8.

- The multiples of 12 are: 0, 12, 24, 36, 48, ...
- The multiples of 8 are: 0, 8, 16, 24, 32, 40, 48, ...
- Common multiples are: 0, 24, 48, ... (Other answers are available)

- 1
 - a List the first 10 multiples of 2: **0 / 2 / 4 / 6 / 8 / 10 / 12 / 14 / 16 / 18**
 - b List the first 5 multiples of 5: **0 / 5 / 10 / 15 / 20**
 - c List the common multiples of 2 and 5 from those you mentioned: **0 / 10 / 20**
- 2
 - a List the first 10 multiples of 3: **0 / 3 / 6 / 9 / 12 / 15 / 18 / 21 / 24 / 27**
 - b List the first 6 multiples of 6: **0 / 6 / 12 / 18 / 24 / 30**
 - c List the first 3 multiples of 9: **0 / 9 / 18**
 - d List the common multiples of the numbers 3, 6 and 9 from those you mentioned: **0 / 18**

Least Common Multiple (LCM)

It is the **smallest common multiple** of two or more numbers with the exception of zero (0).

Ex. Find the **LCM** of 6 and 8:

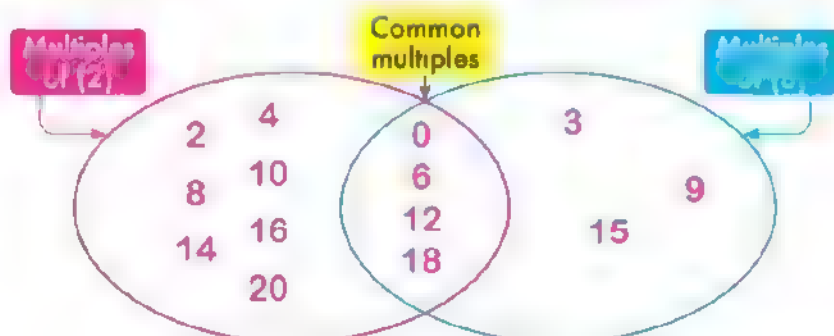
- The multiples of 6 are: **0, 6, 12, 18, 24, 30, 36, 42, 48,**
- The multiples of 8 are: **0, 8, 16, 24, 32, 40, 48, 56, 64,**
- Common multiples are: **0, 24, 48, ...** (Other answers are available)

The least common multiple of the two numbers (LCM) is 24

- 3 List the multiples of 2 and 3 up to 20, then find the **LCM**:

- a The multiples of 2 are: **0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20**
- b The multiples of 3 are: **0, 3, 6, 9, 12, 15, 18**
- c Common multiples are: **0, 6, 12, 18**
- d The **LCM** of 2 and 3 is: **6**

- e Complete the opposite Venn diagram:



Determining the Least Common Multiple of Two Numbers Using Prime Factors

Ex. Find the **LCM** of 12 and 8.

Factorize the two numbers into their **prime factors**.

Write the prime factors of the two numbers, so that the similar factors are on top of each other.

- For every two same factors, we get a common factor.
- We also write dissimilar factors.
- The product of these factors is the least common multiple.



2

$$12 = 2 \times 2 \times 3$$

$$8 = 2 \times 2 \times 2$$

LCM =

3

$$12 = 2 \times 2 \times 3$$

$$8 = 2 \times 2 \times 2$$

LCM = $2 \times 2 \times 3 \times 2 = 24$

So, the **LCM** of 8 and 12 is **24**.

Ex.

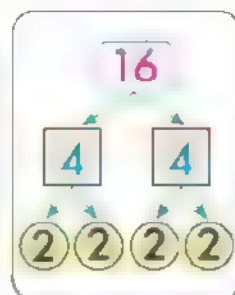
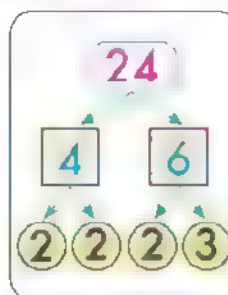
Find the **GCF** and **LCM** of 24 and 16

$$24 = 2 \times 2 \times 2 \times 3$$

$$16 = 2 \times 2 \times 2 \times 2$$

GCF = $2 \times 2 \times 2 = 8$

LCM = $2 \times 2 \times 2 \times 3 \times 2 = 48$



4 Find the **GCF** and **LCM** of each of the following:

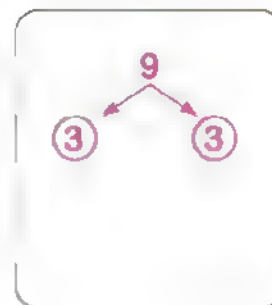
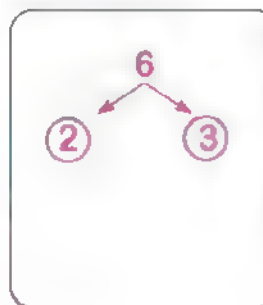
a 6, 9

$$6 = 2 \times 3$$

$$9 = 3 \times 3$$

GCF = 3

LCM = $2 \times 3 \times 3 = 18$



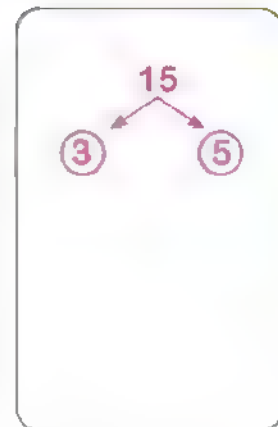
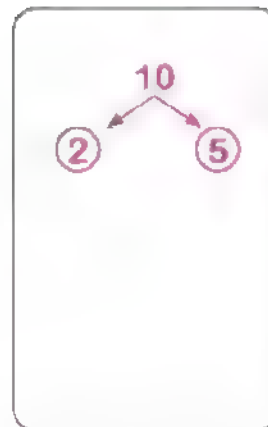
b 10, 15

$$10 = 2 \times 5$$

$$15 = 5 \times 3$$

$$\text{GCF} = 5$$

$$\text{LCM} = 2 \times 3 \times 5 = 30$$



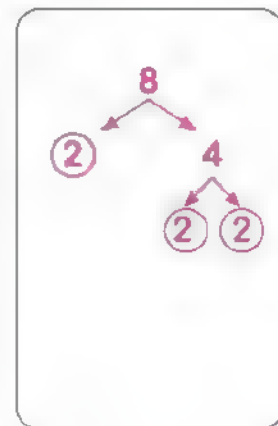
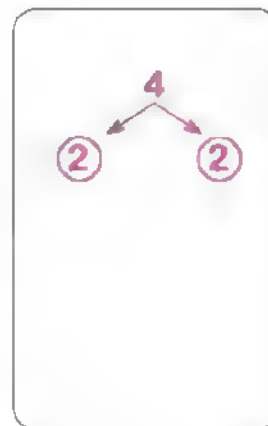
c 4, 8

$$4 = 2 \times 2$$

$$8 = 2 \times 2 \times 2$$

$$\text{GCF} = 4$$

$$\text{LCM} = 2 \times 2 \times 2 = 8$$



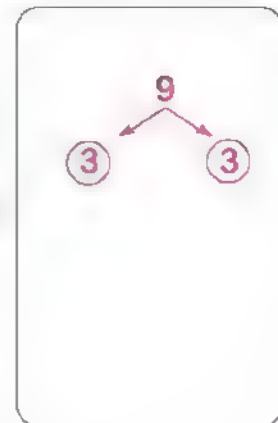
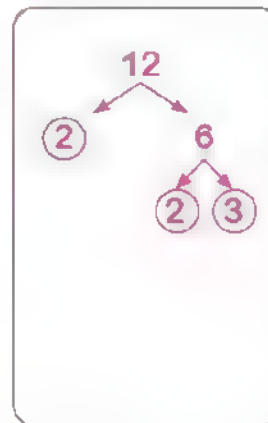
d 12, 9

$$12 = 2 \times 2 \times 3$$

$$9 = 3 \times 3$$

$$\text{GCF} = 3$$

$$\text{LCM} = 2 \times 2 \times 3 \times 3 = 36$$



Notes:

- The least common multiple of two prime numbers is their **product**.
- If one of the two numbers is a factor of the other number, then the **larger** number is the **least common multiple** of the two numbers.

Quiz

10

1 Choose the correct answer:

- a The LCM of 4 and 8 is **8**. (4 or **8** or 12 or 2)
- b The LCM of 2 and 5 is **10**. (**10** or 5 or 7 or 20)
- c **0** is a multiple for all numbers. (1 or **0** or 100 or 2)

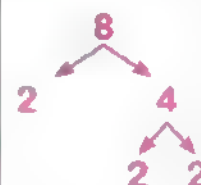
2 Find the GCF and LCM of the two numbers 6 and 8

$$6 = 2 \times 3$$

$$8 = 2 \times 2 \times 2$$

$$\text{GCF} = 2$$

$$\text{LCM} = 2 \times 2 \times 3 \times 2 = 24$$



3 Find the GCF and LCM of the two numbers (6 X 5) and (3 X 14)

$$6 \times 5 = 2 \times 3 \times 5$$

$$3 \times 14 = 2 \times 3 \times 7$$

$$\text{GCF} = 2 \times 3 = 6$$

$$\text{LCM} = 2 \times 3 \times 5 \times 7 = 210$$

Lesson

Factors or Multiples?

How to find the GCF and LCM easily

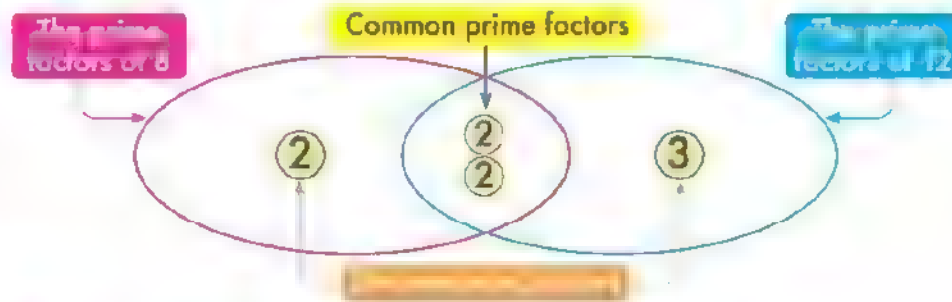
Ex.

Find the GCF and LCM of 8 and 12

1st Step Find prime factors for 8 and 12

$$8 = 2 \times 2 \times 2 \quad 12 = 2 \times 2 \times 3$$

2nd Step Draw the following diagram



3rd Step The GCF is the product of common factors.

$$\text{GCF} = 2 \times 2 = 4$$

The LCM is the product of all factors.

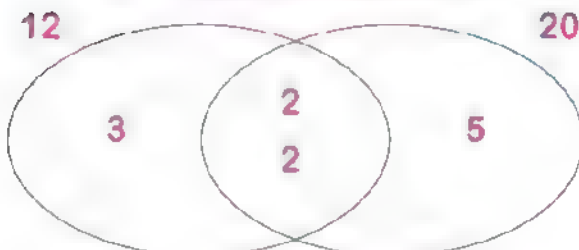
$$\text{LCM} = 2 \times 2 \times 2 \times 3 = 24$$

1 Find the GCF and LCM:

a 12, 20

$$12 = 2 \times 2 \times 3$$

$$20 = 2 \times 2 \times 5$$



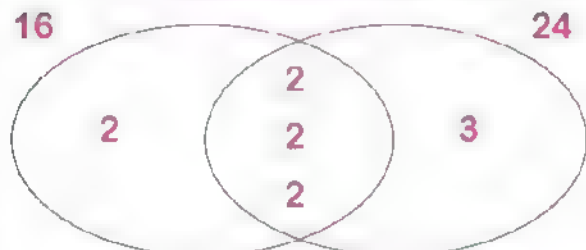
$$\text{GCF} = 2 \times 2 = 4$$

$$\text{LCM} = 2 \times 2 \times 3 \times 5 = 60$$

b 16, 24

$$16 = 2 \times 2 \times 2 \times 2$$

$$24 = 2 \times 2 \times 2 \times 3$$



$$\text{GCF} = 2 \times 2 \times 2 = 8$$

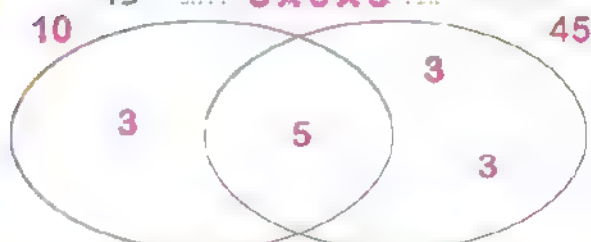
$$\text{LCM} = 2 \times 2 \times 2 \times 2 \times 3 = 48$$

Number Sense and Operations

© 10, 45

$$10 = 2 \times 5$$

$$45 = 5 \times 3 \times 3$$



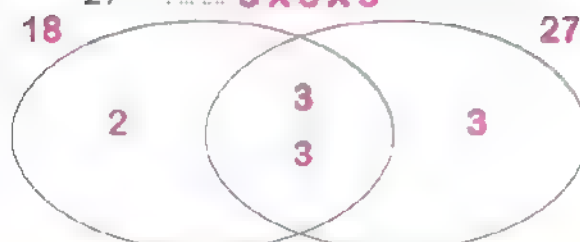
$$\text{GCF} = 5$$

$$\text{LCM} = 2 \times 5 \times 3 \times 3 = 90$$

© 18, 27

$$18 = 2 \times 3 \times 3$$

$$27 = 3 \times 3 \times 3$$



$$\text{GCF} = 3 \times 3 = 9$$

$$\text{LCM} = 2 \times 3 \times 3 \times 3 = 54$$

The Difference Between Factors and Multiples

Factors

Factors of a number

Are all pairs whose products are multiplied together to give this number.

Multiples

Multiples of a number

Are the set of number, that appears when jumping by the same number, starting from zero.



Notes:

Factors

- Not all numbers have the same number of factors.
- When a number is divided evenly, it is divided into factors.
- One of the factors can be obtained by dividing the multiple by the other factor.
- 1 is the factor of all numbers.

Multiples

- All numbers have an **infinite** number of **multiples**.
- The **multiplier** is the multiplying of two factors.
- 0 is the multiple of all numbers.

Story Problems

GCF

Usually Involves

- Breaking
- Dividing
- Cutting things into pieces
- Separating things into groups
- Distributing Equally

LCM

Factors of a number

- Repetition
- Two things happening at the same time
- Multiple items

Note the following two examples:

Ex.

Omnia has two strips of cloth. One is 35 cm wide, and the other is 75 cm wide. She wants to cut both pieces into strips of equal width that are as wide as possible. How wide should she cut the strips?

(In this example, Omnia wants to divide the cloth into pieces,
so we use the GCF in the solution)

Solution: $35 = 5 \times 7$
 $75 = 5 \times 5 \times 3$
GCF = 5

The largest width of the strips = 5 cm.

Ex.

Mohamed trains to walk every 7 days and lift weights every 4 days, he did both today. After how many days will Mohamed walk and lift weights on the same day?

(In this example, there is a repetition of what Mohamed does,
so we use the LCM in the solution)

Solution: Multiples of 7: 0, 7, 14, 21, 28, 35, 42,
 Multiples of 4: 0, 4, 8, 12, 16, 20, 24, 28, 32
LCM = 28

Mohamed will do both exercises after 28 days.

- 2 Omar exercises every 12 days. Rana exercises every 8 days. Both friends exercised together today. How many days will it be until they exercise together again?

LCM = 24 days.

- 3 Malak baked 30 servings of cakes and 48 servings of baklava for her family. She wants to divide the desserts into containers, so that each person receives the same number of servings. How many containers will she need?

GCF = 6 containers

Quiz

10

- 1 Choose the correct answer:

- a If $3 \times 5 = 15$, then 15 is a _____ of 3 (factor or multiple or double or half)
 b If $8 \times 4 = 32$, then 8 is a _____ of 32 (factor or multiple or double or half)
 c _____ is a factor for all even numbers. (1 or 0 or 2 or 3)
 d The GCF for 5 and 9 is _____. (5 or 9 or 1 or 45)
 e The LCM for 2 and 7 is _____. (2 or 7 or 14 or 1)

- 2 Find the GCF and LCM of the two numbers 8 and 10

$$8 = 2 \times 2 \times 2$$

$$10 = 2 \times 5$$

$$\text{GCF} = 2$$

$$\text{LCM} = 2 \times 2 \times 2 \times 5 = 40$$

- 3 Shaima waters one of her plants every 8 days and the other every 10 days. If she waters them today, when is the next time you water the two plants together?

LCM for 10 and 8 is 40

Together after 40 days.

Unit

3

Multiplication with Whole Numbers

Concept

3.1

Models for Multiplication

Lesson

1

Using the Area Model to Multiply

Learning Objective:

By the end of this lesson, the student will be able to:

- Multiply using the area model.

Lesson

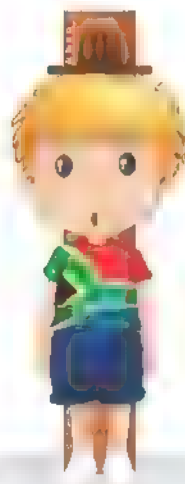
2

The Distributive Property of Multiplication

Learning Objective:

By the end of this lesson, the student will be able to:

- Explain the relationship between the area model of multiplication and the Distributive Property of Multiplication.



I ♥ Math

Lesson

1

Using the Area Model to Multiply

Using the Rectangle Area Model to Multiply a Two-Digit Number by a Two-Digit Number

Ex.

Multiply: 36×42

- Create the following rectangle.

X		

- Expand the first number:

$$36 = 30 + 6$$

- Then, the second number:

$$42 = 40 + 2$$

- Multiply the rows and columns as shown.

- Add the products of the multiplication.

		36	
	X	30	6
42	40		
	2		

		36	
	X	30	6
42	40	$40 \times 30 = 1,200$	$40 \times 6 = 240$
	2	$2 \times 30 = 60$	$2 \times 6 = 12$

So, $36 \times 42 = 1,200 + 240 + 60 + 12 = 1,512$

Ex.

Multiply: 69×427

So 69×427

$$= 24,000 + 1,200 + 420$$

$$+ 3,600 + 180 + 63$$

$$= 29,463$$

		427		
	X	400	20	7
69	60	24,000	1,200	420
	9	3,600	180	63

Ex.

Multiply: 45×308

So 45×308

$$= 12,000 + 320 + 1,500 + 40$$

$$= 13,860$$

		308	
	X	300	8
45	40	12,000	320
	5	1,500	40

1 Multiply using the **area model**:

a $4 \times 247 = 988$

	200	40	7
4	800	160	28

$800 + 160 + 28 = 988$

b $62 \times 36 = 2,232$

	60	2
30	1,800	60
6	360	12

$1,800 + 60 + 360 + 12 = 2,232$

c $84 \times 273 = 22,932$

	200	70	3
80	16,000	5,600	240
4	800	280	12

$16,000 + 5,600 + 240 + 800$
 $280 + 12 = 22,932$

d $37 \times 602 = 22,274$

	600	2
30	18,000	60
7	4,200	14

$18,000 + 4,200 + 60 + 14$
 $= 22,274$

2 Write the **multiplication problem** that expresses each model, then solve it:

a $8 \times 527 = 4,216$

	500	20	7
8	4,000	160	56

$4,000 + 160 + 56 = 4,216$

b $59 \times 28 = 1,652$

	20	8
50	1,000	400
9	180	72

$1,000 + 400 + 180 + 72 = 1,652$

c $43 \times 856 = 36,808$

	800	50	6
40	32,000	2,000	240
3	2,400	150	18

$32,000 + 2,000 + 240 + 2,400$
 $150 + 18 = 36,808$

d $98 \times 603 = 59,094$

	600	3
90	54,000	270
8	4,800	24

$54,000 + 270 + 4,800 + 24$
 $= 59,094$

3 Answer the following

- a Ali walks 6 kilometers each day. If he walked 187 days a year, how many kilometers would he walk?

$$187 \times 6 = 1,122 \text{ km}$$

- b What if Ali wants to drive 60 kilometers each day? How many kilometers would he drive in 105 days?

$$60 \times 105 = 6,300 \text{ km}$$

Quiz

10

- 1 Use the area model to find the product of 23×65 :

$$\begin{aligned} & 65 \times 23 \\ & 1,200 + 180 + 100 + 15 \\ & = 1,495 \end{aligned}$$

	60	5
20	1,200	100
3	180	15

- 2 Complete the area model evaluate:

$$\begin{aligned} & 509 \times 28 \\ & = 10,000 + 4,000 + 180 + 72 \\ & = 14,252 \end{aligned}$$

	500	9
20	10,000	180
8	4,000	72

- 3 A family consumes 5 eggs every day. How many eggs does the family consume in 49 days?

$$\begin{aligned} & 49 \times 5 \\ & 200 + 45 = 245 \text{ eggs} \end{aligned}$$

	40	9
5	200	45

Lesson

2

The Distributive Property of Multiplication

Learn

Multiplication Strategies

The Distributive Property of Multiplication:

Ex. 45×38

$$\begin{aligned}
 45 \times 38 &= (40 + 5) \times (30 + 8) \\
 &= (40 \times 30) + (40 \times 8) + (5 \times 30) + (5 \times 8) \\
 &= 1,200 + 320 + 150 + 40 = 1,710
 \end{aligned}$$

Ex. 69×427

$$\begin{aligned}
 69 \times 427 &= (60 + 9) \times (400 + 20 + 7) \\
 &= (60 \times 400) + (60 \times 20) + (60 \times 7) + (9 \times 400) + (9 \times 20) + (9 \times 7) \\
 &= 24,000 + 1,200 + 420 + 3,600 + 180 + 63 \\
 &= 29,463
 \end{aligned}$$

Ex. 82×304

$$\begin{aligned}
 82 \times 304 &= (80 + 2) \times (300 + 4) \\
 &= (80 \times 300) + (80 \times 4) + (2 \times 300) + (2 \times 4) \\
 &= 24,000 + 320 + 600 + 8 = 24,928
 \end{aligned}$$

1 Complete the following:

$$\begin{aligned} \text{a } 7 \times 63 &= 7 \times (\dots 60 \dots + \dots 3 \dots) \\ &= (7 \times \dots 60 \dots) + (7 \times \dots 3 \dots) = \dots 420 \dots + \dots 21 \dots = \dots 441 \dots \end{aligned}$$

$$\begin{aligned} \text{b } 9 \times 208 &= 9 \times (\dots 200 \dots + \dots 8 \dots) = (9 \times \dots 200 \dots) + (9 \times \dots 8 \dots) \\ &= \dots 1,800 \dots + \dots 72 \dots = \dots 1,872 \dots \end{aligned}$$

$$\begin{aligned} \text{c } 24 \times 38 &= (\dots 20 \dots + \dots 4 \dots) \times (\dots 30 \dots + \dots 8 \dots) \\ &= (\dots 20 \dots \times \dots 30 \dots) + (\dots 20 \dots \times \dots 8 \dots) + (\dots 4 \dots \times \dots 30 \dots) + (\dots 4 \dots \times \dots 8 \dots) \\ &= \dots 600 \dots + \dots 160 \dots + \dots 120 \dots + \dots 32 \dots = \dots 912 \dots \end{aligned}$$

$$\begin{aligned} \text{d } 82 \times 107 &= (\dots 80 \dots + \dots 2 \dots) \times (\dots 100 \dots + \dots 7 \dots) \\ &= (\dots 80 \dots \times \dots 100 \dots) + (\dots 80 \dots \times \dots 7 \dots) + (\dots 2 \dots \times \dots 100 \dots) + (\dots 2 \dots \times \dots 7 \dots) \\ &= \dots 8,000 \dots + \dots 560 \dots + \dots 200 \dots + \dots 14 \dots = \dots 8,774 \dots \end{aligned}$$

$$\begin{aligned} \text{e } 62 \times 142 &= (\dots 60 \dots + \dots 2 \dots) \times (\dots 100 \dots + \dots 40 \dots + \dots 2 \dots) \\ &= (\dots 60 \dots \times \dots 100 \dots) + (\dots 60 \dots \times \dots 40 \dots) + (\dots 60 \dots \times \dots 2 \dots) \\ &\quad + (\dots 2 \dots \times \dots 100 \dots) + (\dots 2 \dots \times \dots 40 \dots) + (\dots 2 \dots \times \dots 2 \dots) \\ &= \dots 6,000 \dots + \dots 2,400 \dots + \dots 120 \dots + \dots 200 \dots + \dots 80 \dots + \dots 4 \dots \\ &= \dots 8,804 \dots \end{aligned}$$

$$\begin{aligned} \text{f } 43 \times 217 &= (\dots 40 \dots + \dots 3 \dots) \times (\dots 200 \dots + \dots 10 \dots + \dots 7 \dots) \\ &= (\dots 40 \dots \times \dots 200 \dots) + (\dots 40 \dots \times \dots 10 \dots) + (\dots 40 \dots \times \dots 7 \dots) \\ &\quad + (\dots 3 \dots \times \dots 200 \dots) + (\dots 3 \dots \times \dots 10 \dots) + (\dots 3 \dots \times \dots 7 \dots) \\ &= \dots 8,000 \dots + \dots 400 \dots + \dots 280 \dots + \dots 600 \dots + \dots 30 \dots + \dots 21 \dots \\ &= \dots 9,331 \dots \end{aligned}$$

Learn

Flexible Numbers

Ex. Note that when multiplying the two numbers 83×14 , 83 and 14 can be divided using **more than one** method.

Ⓐ $83 \times 14 = (80 + 3) \times (10 + 4)$

	10	4
80	800	320
3	30	12

$$800 + 320 + 30 + 12 = 1,162$$

Ⓑ $83 \times 14 = (40 + 40 + 3) \times (10 + 4)$

	10	4
40	400	160
40	400	160
3	30	12

$$400 + 160 + 400 + 160 + 30 + 12 = 1,162$$

Ⓒ $83 \times 14 = (80 + 3) \times (7 + 7)$

	7	7
80	560	560
3	21	21

$$560 + 560 + 21 + 21 = 1,162$$

Ⓓ $83 \times 14 = (50 + 30 + 3) \times (7 + 7)$

	7	7
50	350	350
30	210	210
3	21	21

$$350 + 350 + 210 + 210 + 21 + 21 = 1,162$$

From the above, we find that all methods of dividing numbers lead to the same result.

2 Use the **area model** to find the result of (74×12) .

Divide the numbers in three different ways:

	70	4
10	700	40
2	140	8

1st way: $74 \times 12 = (70 + 4) \times (10 + 2) = 888$

	70	4
6	420	24
6	420	24

2nd way: $74 \times 12 = (70 + 4) \times (6 + 6) = 888$

	40	30	4
10	400	300	40
2	80	60	8

3rd way: $74 \times 12 = (40 + 30 + 4) \times (10 + 2) = 888$

Learn

The Relationship Between the Area Model of Multiplication and the Distributive Property of Multiplication

Note the following examples:

a 8×23

	20	3
8	160	24

$$8 \times 23 = (8 \times 20) + (8 \times 3)$$

$$= 160 + 24 = 184$$

b 3×513

	500	10	3
3	1,500	30	9

$$3 \times 513 = (3 \times 500) + (3 \times 10) + (3 \times 3)$$

$$= 1,500 + 30 + 9 = 1,539$$

c 37×64

	60	4
30	1,800	120
7	420	28

$$37 \times 64 = (30 \times 60) + (30 \times 4) + (7 \times 60) + (7 \times 4)$$

$$= 1,800 + 120 + 420 + 28 = 2,368$$

3 Complete using the area model:

a $8 \times 37 = 8 \times (30 + 7)$

$$= (8 \times 30) + (8 \times 7)$$

$$= 240 + 56 = 296$$

	30	7
8	240	56

b $5 \times 264 = 5 \times (200 + 60 + 4)$

$$= (5 \times 200) + (5 \times 60) + (5 \times 4)$$

$$= 1,000 + 300 + 20 = 1,320$$

	200	60	4
5	1,000	300	20

c $26 \times 73 = (20 + 6) \times (70 + 3)$

$$= (20 \times 70) + (20 \times 3)$$

$$+ (6 \times 70) + (6 \times 3)$$

$$= 1,400 + 60 + 420 + 18 = 1,898$$

	70	3
20	1,400	60
6	420	18

4 Complete the area model and find the product:

Ⓐ $(4 \times 50) + (4 \times 3) + (20 \times 50) + (20 \times 3)$
 $= 24 \times 53 = 1,272$

	20	4
50	1,000	200
3	60	12

Ⓑ $(20 \times 40) + (20 \times 7) + (8 \times 40) + (8 \times 7)$
 $= 28 \times 47 = 1,316$

	20	8
40	800	320
7	140	56

Quiz

10

1 Choose the correct answer:

- Ⓐ $(20 \times 30) + (20 \times 7) + (4 \times 30) + (4 \times 7) = 24 \times 37$
 (23 \times 47 or 20 \times 34 or 27 \times 30 or **24 \times 37**)
- Ⓑ $807 \times 62 = (800 \times 60) + (800 \times 2) + (7 \times 60) + (7 \times 2)$
 (**7 \times 2** or 8 \times 6 or 7 \times 6 or 8 \times 2)

2 Complete the area model to find the product:

$(30 \times 20) + (30 \times 7) + (5 \times 20) + (5 \times 7)$
 $35 \times 27 = 945$

	30	5
20	600	100
7	210	35

3 Complete the Distributive Property of Multiplication to find the product:

$(40 \times 600) + (40 \times 20) + (40 \times 7)$
 $+ (3 \times 600) + (3 \times 20) + (3 \times 7)$
 $= 26,961$

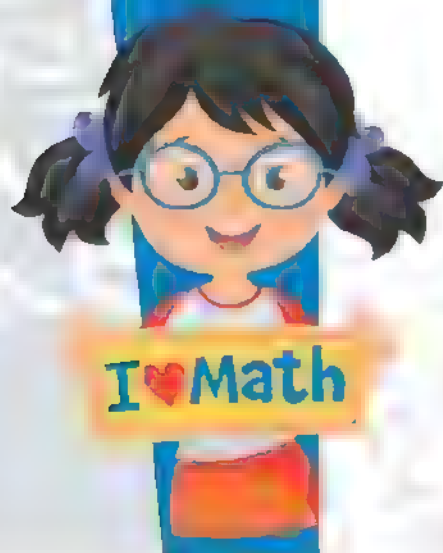
	600	20	7
40	24,000	800	280
3	1,800	60	21

Then $627 \times 43 = 26,961$

Unit

3

Multiplication with Whole Numbers



Concept

3.2

Multiplying 4-Digit Numbers by 2-Digit Numbers

Lessons

3-5

Multiplying by a 2-Digit Number Using Algorithm
Multiplying Multi-Digit Numbers
Multiplication Problems in the Real World

Learning Objectives:

By the end of these lessons, the student will be able to:

- Multiply using the standard algorithm.
- Multiply 4-digit numbers by 2-digit numbers using the standard algorithm.
- Use estimation to check the reasonableness of his/her answers.
- Solve multistep story problems involving multiplication.



Lesson 3-5

Multiplying by a 2-Digit Number Using Algorithm Multiplying Multi-Digit Numbers Multiplication Problems in the Real World



Learn

Standard Algorithm for Multiplication

Ex. Multiply: 45×23

1 Multiply the **Ones** digit (**3**) by **47**.

$$\begin{array}{r} 47 \\ \times 23 \\ \hline 141 \end{array}$$

$3 \times 47 = 141$

2 Multiply the **Tens** digit (**2**) by **47**.

$$\begin{array}{r} 47 \\ \times 23 \\ \hline 141 \\ + 940 \end{array}$$

$20 \times 47 = 940$

3 Add the products.

$$\begin{array}{r} 47 \\ \times 23 \\ \hline 141 \\ + 940 \\ \hline 1,081 \end{array}$$

$23 \times 47 = 1,081$

Comparing Multiplication Models

Area Model

	40	7
20	800	140
3	120	21

Standard Algorithm

$$\begin{array}{r} 47 \\ \times 23 \\ \hline 141 \\ + 940 \\ \hline 1,081 \end{array}$$

Distribution

$$\begin{aligned} 23 \times 47 &= (20 + 3) \times (40 + 7) \\ &= (20 \times 40) + (20 \times 7) + (3 \times 40) + (3 \times 7) \\ &= [800 + 140] + [120 + 21] \\ &= 1,081 \end{aligned}$$

Number Sense and Operations

1 Find the product using the **standard algorithm** for multiplication:

a

$$\begin{array}{r} 78 \\ \times 26 \\ \hline 468 \\ + 1,560 \\ \hline 2,028 \end{array}$$

b

$$\begin{array}{r} 63 \\ \times 37 \\ \hline 441 \\ + 1,890 \\ \hline 2,331 \end{array}$$

c

$$\begin{array}{r} 92 \\ \times 19 \\ \hline 828 \\ + 920 \\ \hline 1,748 \end{array}$$

d

$$\begin{array}{r} 46 \\ \times 53 \\ \hline 138 \\ + 2,300 \\ \hline 2,438 \end{array}$$

Learn

Multiplying Multi-Digit Numbers by 2-Digit Numbers

Ex. Multiply: 367×25

Standard Algorithm

1 Multiply the **Ones** digit (5) by 367

$$\begin{array}{r} 367 \\ \times 25 \\ \hline 1835 \end{array}$$

$$5 \times 367 = 1,835$$

2 Multiply the **Tens** digit (2) by 367

$$\begin{array}{r} 367 \\ \times 25 \\ \hline 1835 \\ + 7340 \end{array}$$

$$20 \times 367 = 7,340$$

3 Add the products.

$$\begin{array}{r} 367 \\ \times 25 \\ \hline 1835 \\ + 7340 \\ \hline 9175 \end{array}$$

$$25 \times 367 = 9,175$$

Area Model

$$\begin{aligned} 25 \times 367 &= 6,000 + 1,200 \\ &\quad + 140 + 1,500 \\ &\quad + 300 + 35 \\ &= 9,175 \end{aligned}$$

	300	60	7
20	6,000	1,200	140
5	1,500	300	35

Distribution Property

$$\begin{aligned} 25 \times 367 &= (20 + 5) \times (300 + 60 + 7) \\ &= (20 \times 300) + (20 \times 60) + (20 \times 7) + (5 \times 300) + (5 \times 60) + (5 \times 7) \\ &= 6,000 + 1,200 + 140 + 1,500 + 300 + 35 \\ &= 9,175 \end{aligned}$$

Ex.

Multiply: $3,578 \times 56$

Standard Algorithm

1

Multiply
the **Ones**

digit (**6**)

by **3,587**

$$\begin{array}{r} \text{3 5 8} \\ 3,578 \\ \times 56 \\ \hline 21,468 \end{array}$$

2

Multiply
the **Tens**

digit (**5**)

by **3,587**

$$\begin{array}{r} \text{2 3 0} \\ 3,578 \\ \times 56 \\ \hline 21,468 \\ +178,900 \end{array}$$

3

Add the
products.

$$\begin{array}{r} 3,578 \\ \times 56 \\ \hline 21,468 \\ +178,900 \\ \hline 200,368 \end{array}$$

$$6 \times 3,578 = 21,468 \quad 50 \times 3,578 = 178,900 \quad 56 \times 3,578 = 200,368$$

Area Model

$$56 \times 3,578 = 200,368$$

$$\begin{aligned} &150,000 + 25,000 + 3,500 \\ &+ 400 + 18,000 + 3,000 \\ &+ 420 + 48 = 200,368 \end{aligned}$$

	3,000	500	70	8
50	150,000	25,000	3,500	400
6	18,000	3,000	420	48

Distribution Property

$$\begin{aligned} 56 \times 3,578 &= (50 + 6) \times (3,000 + 500 + 70 + 8) \\ &= (50 \times 3,000) + (50 \times 500) + (50 \times 70) + (50 \times 8) \\ &\quad + (6 \times 3,000) + (6 \times 500) + (6 \times 70) + (6 \times 8) \\ &= 150,000 + 25,000 + 3,500 + 400 + 18,000 + 3,000 \\ &\quad + 420 + 48 = 200,368 \end{aligned}$$

2 Find the product using the **standard algorithm** for multiplication:

a 248

$$\times 72$$

$$\begin{array}{r} 496 \\ +17,360 \\ \hline 17,856 \end{array}$$

b $1,729$

$$\times 56$$

$$\begin{array}{r} 10,374 \\ +86,450 \\ \hline 96,824 \end{array}$$

c $2,507$

$$\times 63$$

$$\begin{array}{r} 7,521 \\ +150,420 \\ \hline 157,941 \end{array}$$

d $6,008$

$$\times 93$$

$$\begin{array}{r} 18,024 \\ + 540,720 \\ \hline 558,744 \end{array}$$

3 Find the product using the area model:

a $39 \times 75 = 2,925$

	70	5
30	2,100	150
9	630	45

$$2,100 + 630 + 150 + 45 = 2,925$$

b $63 \times 208 = 13,104$

	200	8
60	12,000	480
3	600	24

$$12,000 + 480 + 600 + 24 = 13,104$$

c $38 \times 1,007 = 38,266$

	1,000	7
30	30,000	210
8	8,000	56

$$30,000 + 210 + 8,000 + 56 = 38,266$$

d $43 \times 217 = 9,331$

	200	10	7
40	8,000	400	280
3	600	30	21

$$8,000 + 400 + 280 + 600 + 30 + 21 = 9,331$$

e $25 \times 2,163 = 54,075$

	2,000	100	60	3
20	40,000	2,000	1,200	60
5	10,000	500	300	15

$$40,000 + 2,000 + 1,200 + 60 + 10,000 + 500 + 300 + 15 = 54,075$$

4 Find the product using the Distribution Property:

a $93 \times 24 = (90 + 3) \times (20 + 4)$
 $= (90 \times 20) + (90 \times 4) + (3 \times 20) + (3 \times 4)$
 $= 1,800 + 360 + 60 + 12 = 2,232$

b $72 \times 103 = (70 + 2) \times (100 + 3)$
 $= (70 \times 100) + (70 \times 3) + (2 \times 100) + (2 \times 3)$
 $= 7,000 + 210 + 200 + 6 = 7,416$

c $52 \times 214 = (50 + 2) \times (200 + 10 + 4)$
 $= (50 \times 200) + (50 \times 10) + (50 \times 4)$
 $+ (2 \times 200) + (2 \times 10) + (2 \times 4)$
 $= 10,000 + 500 + 200 + 400 + 20 + 8 = 11,128$

d $82 \times 107 = (80 + 2) \times (100 + 7)$
 $= (80 \times 100) + (80 \times 7) + (2 \times 100) + (2 \times 7)$
 $= 8,000 + 560 + 200 + 14 = 8,774$

Learn

Estimating Products

Ex. Estimate the product of the multiplication, then find the actual product.

a 53×67

Actual Product	Estimate
$\begin{array}{r} 67 \\ \times 53 \\ \hline 201 \\ + 3,350 \\ \hline 3,551 \end{array}$	$\begin{array}{r} 70 \\ \times 50 \\ \hline 3,500 \end{array}$
	Round to the greatest place value

b 39×174

Actual Product	Estimate
$\begin{array}{r} 174 \\ \times 39 \\ \hline 1,566 \\ + 5,220 \\ \hline 6,786 \end{array}$	$\begin{array}{r} 200 \\ \times 40 \\ \hline 8,000 \end{array}$
	Round to the greatest place value

5 Estimate the product of the multiplication, then find the actual product:

a 53×67

Actual Product	Estimate
$\begin{array}{r} 67 \\ \times 53 \\ \hline 201 \\ + 3350 \\ \hline 3,551 \end{array}$	$\begin{array}{r} 70 \\ \times 50 \\ \hline 3,500 \end{array}$
	Round to the greatest place value

b 39×174

Actual Product	Estimate
$\begin{array}{r} 174 \\ \times 39 \\ \hline 1566 \\ + 5220 \\ \hline 6,786 \end{array}$	$\begin{array}{r} 200 \\ \times 40 \\ \hline 8,000 \end{array}$
	Round to the greatest place value

6 Answer the following:

- a Mona has a restaurant in Al-Quesyr. In February, Mona sold 402 kebabs. In March, she sold 753 kebabs. She makes each kebab with 83 grams of meat. How many grams of meat did she use in February and March?

$$753 + 402 = 1,155 \text{ kebabs,}$$

$$1,155 \times 83 = 95,865 \text{ g}$$

Number Sense and Operations

- b** Mona's son, Wael, makes baklava to sell at his family's restaurant. His recipe calls for 170 grams each of pistachios, walnuts, and hazelnuts. In order to make enough for the customers, he needs to multiply his recipe by 18. How many total grams of nuts will he need?

$$170 \times 3 \times 18 = 9,180 \text{ g}$$

- c** For Wael's baklava syrup, he needs 250 milliliters of honey, 15 mL of orange extract, and 30 mL of lemon juice per recipe. How many total milliliters of liquid ingredients will he need for the syrup if he needs to make 18 batches?

$$250 + 15 + 30 = 295 \text{ mL}$$

$$295 \times 18 = 5,310 \text{ mL}$$

Quiz

10

- 1** Use the area model to find the product of 23×65

- a** 627×43 (Use area model)

40	24,000	800	280
3	1,800	60	21

$$24,000 + 800 + 280 + 1,800 + 60 + 21 = 26,961$$

- b** 33×256 (Use standard algorithm)

$$\begin{array}{r} 256 \\ \times 33 \\ \hline 768 \\ + 7,680 \\ \hline 8,448 \end{array}$$

- c** 75×248 (Use Distributive Property)

$$\begin{aligned} & (70 + 5) \times (200 + 40 + 8) \\ &= (70 \times 200) + (70 \times 40) + (70 \times 8) + (5 \times 200) + (5 \times 40) + (5 \times 8) \\ &= 14,000 + 2,800 + 560 + 1,000 + 200 + 40 = 18,600 \end{aligned}$$

- 2** Estimate the product of 89×42 using rounding to the greatest value.

$\begin{array}{r} 189 \\ \times 34 \\ \hline 756 \\ + 5,670 \\ \hline 6,426 \end{array}$	$\begin{array}{r} 200 \\ \times 30 \\ \hline 6,000 \end{array}$
--	---

Theme

2

Mathematical Operations and Algebraic Thinking

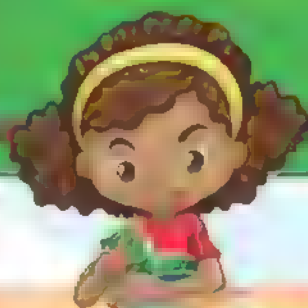
DIVIDE: $29 \div 3$

MULTIPLY: 9×3

SUBTRACT: $29 - 27$

DROP THE DIGIT: 1

$$\begin{array}{r} 9 \\ 3 \overline{) 891} \\ \underline{6} \\ 29 \\ \underline{27} \\ 21 \end{array}$$



Theme Units:

Unit 4

4 Division with Whole Numbers

Concept 4.1: Models for Division

Concept 4.2: Dividing by 2-Digit Divisors

Unit 5

5 Multiplication and Division with Decimals

Concept 5.1: Multiplying Decimals

Concept 5.2: Dividing Decimals 2

Unit 6

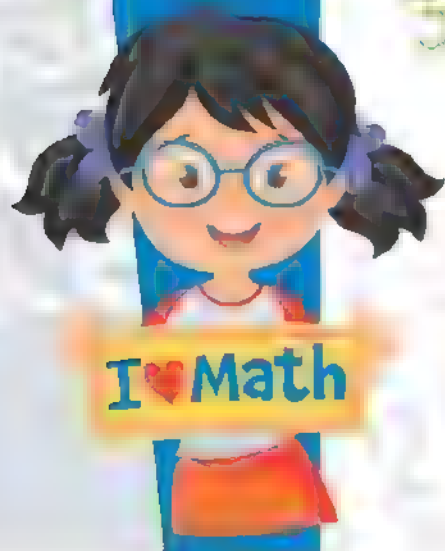
6 Numerical Expressions and Patterns

Concept 6.1: Evaluating Numerical Expressions and Patterns

Unit

4

Division with Whole Numbers



Concept

4.1

Models for Division

Lessons

1 & 2

Dividing by a 2-Digit Number
Estimating Quotients

Learning Objectives:

By the end of these lessons, the student will be able to:

- Use the area model to solve division problems.
- Use estimation to check the reasonableness of his/her answers.



Lessons 1&2

Dividing by a 2-Digit Number Estimating Quotients

Remember

$$39 \div 9 = 4 \text{ R } 3$$

Dividend | Divisor | Quotient | Remainder

Dividing by a 1-Digit Number

Using the Area Model to Divide

Ex. Divide: $753 \div 6$

1

Draw a rectangle and write the divisor (6) on the left side of the rectangle.

- We look for a multiple of 6, close to 753.
- We find that 600 is a multiple of 6;
because $600 = 6 \times 100$.
- We write 100 over one part of the rectangle,
and we write $753 - 600 = 153$ inside it.

	100		
	753		
	- 600		
	153		

2

	100	20	
	753	153	
	- 600	- 120	
	153	33	

- We repeat the same steps
with the rest of the number

3

	100 + 20 + 5 = 125		
	753	153	33
	- 600	- 120	- 30
	153	33	3

$$753 \div 6 = 125 \text{ (R } 3)$$

- To find the quotient, we add the
numbers above the rectangle:

$$100 + 20 + 5 = 125$$

Note that There is more than one way to use the **area model** to solve division problems, as in the following:

$100 + 10 + 10 + 5 = 125$

753	153	93	33
6 - 600	- 60	- 60	- 30
153	93	33	3

Quotient 125
Remainder 3

$753 \div 6 = 125 \text{ (R 3)}$

$50 + 50 + 10 + 10 + 5 = 125$

753	453	153	93	33
6 - 300	- 300	- 60	- 60	- 30
453	153	93	33	3

Quotient 125
Remainder 3

$753 \div 6 = 125 \text{ (R 3)}$

1 Divide using the area model:

a $76 \div 5$

$10 \quad 5$

76	26
5 - 50	- 25
26	1

15 (R1)

b $627 \div 9$

$60 \quad 9$

627	87
9 - 540	- 81
87	6

69 (R6)

c $3,256 \div 8$

$400 \quad 7$

3,256	56
8 - 3,200	- 56
56	00

407

d $6,820 \div 5$

$1,000 \quad 300 \quad 60 \quad 4$

6,820	1,820	320	20
5 - 5,000	- 1,500	- 300	- 20
1,820	320	20	00

$1,364$

Learn

Dividing by a Two-Digit Number Using the Area Model

Ex. Divide: $966 \div 23$

1

We follow the same steps for dividing by a one-digit number:

- We look for a multiple of 23, close to the dividend of 966.
- We find that $40 \times 23 = 920$.
- We write 40 over one part of the rectangle, and we write $966 - 920 = 46$ inside it.

	40	+	
23	966	-	920
	46		

2

	40	+	2	=	42
23	966	-	920		46
	46	-	46		0

$$40 + 2 = 42$$

$$966 \div 23 = 42$$

Another Solution

	10	+	10	+	10	+	10	+	2	=	125
23	966	-	230	-	230	-	230	-	230	-	46
	736		506		276		46		0		

$$10 + 10 + 10 + 10 + 2 = 42$$

$$966 \div 23 = 42$$

Ex. Divide: $1,625 \div 13$

Another Solution

	100	+	20	+	5	=	125
13	1,625	-	1,300	-	260	-	65
	325		65		0		

$$1,625 \div 13 = 125$$

	100	+	10	+	10	+	5	=	125
13	1,625	-	1,300	-	130	-	130	-	65
	325		195		65		0		

$$1,625 \div 13 = 125$$

Ex. Divide: $10,454 \div 24$

$$400 + 30 + 5 = 435$$

10,454	854	134
- 9,600	- 720	- 120
854	134	14

$$10,454 \div 24 = 435 \text{ (R 14)}$$

Another Solution

$$100 + 100 + 100 + 100 + 10 + 10 + 10 + 5 = 435$$

10,454	8,054	5,654	3,254	854	614	374	134
- 2,400	- 2,400	- 2,400	- 2,400	- 240	- 240	- 240	- 120
8,054	5,654	3,254	854	614	374	134	14

$$10,454 \div 24 = 435 \text{ (R 14)}$$

2 Divide using the area model:

a $998 \div 19 = 52 \text{ (R10)}$

50	2
998	48
- 950	- 38
48	10

b $899 \div 37 = 24 \text{ (R11)}$

20	4
899	159
- 740	- 148
159	11

c $4,428 \div 36 = 123$

100	20	20
4,428	828	108
- 3,600	- 720	- 108
828	108	000

d $7,946 \div 63 = 126 \text{ (R8)}$

100	20	6
7,946	1,646	386
- 6,300	- 1,260	- 378
1,646	386	008

e $17,082 \div 73 = 234$

200	30	4
17,082	2,482	292
- 14,600	- 2,190	- 292
2,482	292	000

3 Complete the area model, then find the quotient:

a $7,776 \div 32$

	200	40	3
	7,776	1,376	96
32	- 6,400	- 1,280	- 96
	1,376	96	14
	$200 + 40 + 3 = 243$		

b $9,234 \div 81$

	100	10	2	2
	9,234	1,134	324	162
81	- 8,100	- 810	- 162	- 162
	1,134	324	162	000
	$100 + 10 + 2 + 2 = 114$			

4

Learn

Estimating Quotients

- To estimate the quotient, round the dividend and the divisor to the greatest place value the divide.

Ex. Divide: $1,632 \div 48$

	30	4
	1,632	192
48	- 1,440	- 192
	192	0

$1,632 \div 48 = 34$

Estimate

$1,632 \div 48$
 $\downarrow \quad \downarrow$
 $2,000 \div 50 = 40$

The answer is
reasonable

Ex. Divide: $6,552 \div 28$

	200	30	4
	6,552	952	112
28	- 5,600	- 840	- 112
	952	112	0

$6,552 \div 28 = 234$

Estimate

$6,552 \div 28$
 $\downarrow \quad \downarrow$
 $6,000 \div 30 = 200$

The answer is
reasonable

4 Estimate the quotient, then find the actual result.

a $791 \div 21$

Actual Quotient

	30	7
21	$\begin{array}{r} 791 \\ - 630 \\ \hline 161 \end{array}$	$\begin{array}{r} 161 \\ - 147 \\ \hline 14 \end{array}$

$791 \div 21 = 37 \text{ (R14)}$

Estimate

$798 \div 21$

$800 \div 20 = 40$

The answer is
reasonable

b $2,142 \div 53$

Actual Quotient

	40
53	$\begin{array}{r} 2,142 \\ - 2,120 \\ \hline 22 \end{array}$

$2,142 \div 53 = 40 \text{ (R 22)}$

Estimate

$2,142 \div 53$

$2,000 \div 50 = 40$

The answer is
reasonable

c $20,904 \div 67$

Actual Quotient

	300	10	2
21	$\begin{array}{r} 20,904 \\ - 20,100 \\ \hline 804 \end{array}$	$\begin{array}{r} 804 \\ - 670 \\ \hline 134 \end{array}$	$\begin{array}{r} 134 \\ - 134 \\ \hline 000 \end{array}$

$20,904 \div 67 = 312$

Estimate

$20,904 \div 67$

$21,000 \div 70 = 300$

The answer is
reasonable

Quiz

10

1 Choose the correct answer:

- a In $38 \div 9 = 4 \text{ r } 2$, the divisor is **9**. (9 or 38 or 2 or 4)
- b In $23 \div 7 = 3 \text{ r } 2$, the quotient is **3**. (2 or 7 or 23 or 3)
- c In $55 \div 6 = 9 \text{ r } 1$, the dividend is **55**. (9 or 6 or 55 or 1)
- d In $65 \div 7 = 9 \text{ r } 2$, the remainder is **2**. (65 or 7 or 9 or 2)

2 Complete the following operation:

$$\begin{array}{r} 100 \dots \dots 30 \dots \dots 4 \\ 673 \dots \div \dots 5 \dots \dots \\ = \dots 134 \dots \text{R} \dots 3 \dots \end{array}$$

$\begin{array}{r} 673 \\ - 500 \\ \hline 173 \end{array}$	$\begin{array}{r} 173 \\ - 150 \\ \hline 23 \end{array}$	$\begin{array}{r} 23 \\ - 20 \\ \hline 3 \end{array}$
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3 Estimate the quotient using rounding to the greatest value:

$$4,428 \div 41$$

$$4,000 \div 40 = 100$$

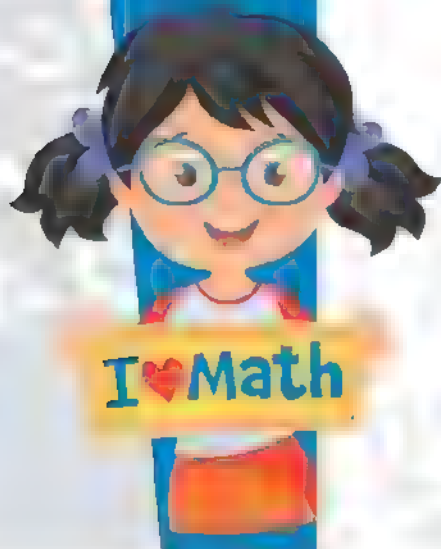
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Unit

4

Division with Whole Numbers



Concept

4.2

Dividing by 2-Digit
Divisors

Lessons

3–5

Using the Division Algorithm

The Relation Between Division and Multiplication

Multistep Story Problems

Learning Objectives

By the end of these lessons, the student will be able to.

- Use the standard algorithm to divide by a 2-digit divisor.
- Use multiplication to check answers to division problems
- Solve multistep story problems involving whole numbers and the four operations.



Lesson 3-5

Using the Division Algorithm The Relation Between Division and Multiplication Multistep Story Problems

Remember

Using the Standard Algorithm to Divide

Ex. Divide: $891 \div 3$

The steps of the division process:

First Step:
Divide

$$\begin{array}{r} 2 \\ 3 \overline{) 891} \\ \underline{6} \\ 29 \end{array}$$

Second Step:
Multiply

$$\begin{array}{r} \times 2 \\ 3 \overline{) 891} \\ \underline{6} \\ 29 \end{array}$$

Third Step:
Subtract

$$\begin{array}{r} 2 \\ 3 \overline{) 891} \\ \underline{-6} \\ 2 \end{array}$$

Fourth Step:
Drop the next digit

$$\begin{array}{r} 2 \\ 3 \overline{) 891} \\ \underline{-6} \\ 29 \end{array}$$

We repeat the same steps

Divide: $29 \div 3$

Multiply: 9×3

Subtract: $29 - 27$

Drop the digit: 1

$$\begin{array}{r} 29 \\ 3 \overline{) 891} \\ \underline{-6} \\ 29 \\ \underline{-27} \\ 21 \end{array}$$

Divide: $21 \div 3$

Multiply: 7×3

Subtract: $21 - 21$

$$\begin{array}{r} 297 \\ 3 \overline{) 891} \\ \underline{-6} \\ 29 \\ \underline{-27} \\ 21 \\ \underline{-21} \\ 0 \end{array}$$

So, $891 \div 3 = 297$

Note that Multiplication and division are **inverse operations**, so we can use multiplication to check the result of division.

From the previous example:

$297 \times 3 = 891$, where the product of multiplication is equal to the dividend, so the quotient is true.

Ex.

Divide: $859 \div 8$

(Using the standard division algorithm)

- **Note that:** When dividing $5 \div 8$, division is **not possible** because $5 < 8$.

So: We put **0** over the digit **5**, and we divide **5** and **9** together: $59 \div 8$.

Find: $859 \div 8 = 107 (R 3)$

Check: $(107 \times 8) + 3 = 859$

$$\begin{array}{r}
 \begin{array}{l}
 5 \div 8 \\
 \text{Not possible}
 \end{array}
 \end{array}$$

$8 \div 8 = 1$ $56 \div 8 = 7$

$$\begin{array}{r}
 107 \\
 8 \overline{) 859} \\
 \underline{800} \\
 59 \\
 \underline{56} \\
 3
 \end{array}$$

1 Divide using the standard division algorithm:

a $785 \div 5$

$= 157$

$$\begin{array}{r}
 157 \\
 5 \overline{) 785} \\
 \underline{-500} \\
 285 \\
 \underline{-250} \\
 035 \\
 \underline{-35} \\
 00
 \end{array}$$

b $2,598 \div 4$

$= 649 (R2)$

$$\begin{array}{r}
 649 \\
 4 \overline{) 2,598} \\
 \underline{-2,400} \\
 198 \\
 \underline{-160} \\
 38 \\
 \underline{-36} \\
 2
 \end{array}$$

c $3,565 \div 3$

$= 1,188 (R1)$

$$\begin{array}{r}
 1,188 \\
 3 \overline{) 3,565} \\
 \underline{-3,000} \\
 0565 \\
 \underline{-300} \\
 265 \\
 \underline{-240} \\
 25 \\
 \underline{-24} \\
 1
 \end{array}$$

d $9,628 \div 8$

$= 1,203 (R4)$

$$\begin{array}{r}
 1,203 \\
 8 \overline{) 9,628} \\
 \underline{-8,000} \\
 1,628 \\
 \underline{-1,600} \\
 28 \\
 \underline{-24} \\
 4
 \end{array}$$

Learn

Dividing by a Two-Digit Number Using the Standard Division Algorithm

Create a multiplication table for the divisor to help you:

$$46 \times 1 = 46$$

$$46 \times 2 = 92$$

$$46 \times 3 = 138$$

$$46 \times 4 = 184$$

$$46 \times 5 = 230$$

$$46 \times 7 = 322$$

Starting from the left, we find that:

$9 < 46$, so we divide $99 \div 46$.

With the help of the previous table, we find that:

The nearest multiple of 46 to 99 is $46 \times 2 = 92$.

$$\begin{array}{r} 0217 \\ 46 \overline{) 9,982} \\ \underline{- 92} \\ 78 \end{array}$$

2

$$\begin{array}{r} 0217 \\ 46 \overline{) 9,982} \\ \underline{- 92} \\ 78 \\ \underline{- 46} \\ 322 \end{array}$$

3

$$\begin{array}{r} 0217 \\ 46 \overline{) 9,982} \\ \underline{- 92} \\ 78 \\ \underline{- 46} \\ 322 \\ \underline{- 322} \\ 000 \end{array}$$

So: $9,982 \div 46 = 217$

Check: $217 \times 46 = 9,982$

Ex.

a) Divide $1,863 \div 23 = 81$

$$\begin{array}{r} 81 \\ 23 \overline{) 1,863} \\ \underline{- 184} \\ 23 \\ \underline{- 23} \\ 00 \end{array}$$

$$\begin{array}{l} 23 \times 1 = 23 \\ 23 \times 2 = 46 \\ 23 \times 3 = 69 \\ 23 \times 4 = 92 \\ 23 \times 5 = 115 \\ 23 \times 6 = 138 \\ 23 \times 7 = 161 \\ 23 \times 8 = 184 \\ 23 \times 9 = 207 \end{array}$$

b) Divide $7,038 \div 46 = 153$

$$\begin{array}{r} 153 \\ 46 \overline{) 7,038} \\ \underline{- 46} \\ 243 \\ \underline{- 230} \\ 138 \\ \underline{- 138} \\ 000 \end{array}$$

$$\begin{array}{l} 46 \times 1 = 46 \\ 46 \times 2 = 92 \\ 46 \times 3 = 138 \\ 46 \times 4 = 184 \\ 46 \times 5 = 230 \\ 46 \times 6 = 276 \end{array}$$

2 Divide using the standard division algorithm:

a $1,449 \div 63 = 23$

	Draft
$ \begin{array}{r} 0023 \\ 63 \overline{) 1,449} \\ \underline{- 126} \\ 0189 \\ \underline{- 0189} \\ 000 \end{array} $	

b $44,032 \div 42 = 1,048 \text{ (R16)}$

	Draft
$ \begin{array}{r} 01,048 \\ 42 \overline{) 44,032} \\ \underline{- 42} \\ 203 \\ \underline{- 168} \\ 352 \\ \underline{- 336} \\ 16 \end{array} $	

c $4,884 \div 24 = 203 \text{ (R12)}$

	Draft
$ \begin{array}{r} 0203 \\ 24 \overline{) 4,884} \\ \underline{- 48} \\ 0084 \\ \underline{- 72} \\ 12 \end{array} $	

d $7,834 \div 37 = 211 \text{ (R27)}$

	Draft
$ \begin{array}{r} 0211 \\ 37 \overline{) 7,834} \\ \underline{- 74} \\ 43 \\ \underline{- 37} \\ 064 \\ \underline{- 57} \\ 27 \end{array} $	

3 Answer the following:

- a In her cafe, Rana sells cakes that were baked in a bakery. Rana received an order to deliver 350 cakes. She put the cakes in bags, 12 cakes each. Find the number of bags.

$350 \div 12 = 29 \text{ (R2)}, \text{ Number of bags} = 30$

	Draft
$ \begin{array}{r} 029 \\ 12 \overline{) 350} \\ \underline{- 24} \\ 110 \\ \underline{- 108} \\ 2 \end{array} $	

- 6 Computer Depot sold 762 reams of paper. Paper Palace sold 3 times as much paper as Computer Depot and 143 reams more than Office Supply Central. How many reams of paper were sold by all three stores combined?

$$\text{Paper Palace} = 3 \times 762 = 2,286 \text{ reams}$$

$$\text{Office Supply} = 2,286 - 143 = 2,143 \text{ reams}$$

$$\text{Sum} = 762 + 2,286 + 2,143 = 5,191 \text{ reams}$$

Draft

- 7 Hazem has 5 boxes of red pens, each with 24 pens, and 4 boxes of blue pens, each with 12 pens. Hazem wants to distribute the pens evenly among 8 of his friends.

How many pencils will each friend get?

$$\text{Red} = 5 \times 24 = 120 \text{ pens}$$

$$\text{blue} = 4 \times 12 = 48 \text{ pens}$$

$$\text{Each friend will get} = (120 + 48) \div 8$$

$$= 168 \div 8 = 21 \text{ pens}$$

Draft

- 8 The school library received 55 boxes, each containing 72 books.

These books will be distributed in 12 cupboards.

How many books will be in each cupboard?

$$72 \times 55 = 3,960 \text{ books}$$

$$3,960 \div 12 = 330 \text{ books}$$

Draft

Quiz

10

1 Complete the following division operations:

a

$$\begin{array}{r} 164. \\ 4 \overline{) 656} \\ \underline{- 4} \\ 25 \\ \underline{- 24} \\ 16 \\ \underline{- 16} \\ 00 \end{array}$$

b

$$\begin{array}{r} 125 \\ 5 \overline{) 625} \\ \underline{- 5} \\ 12 \\ \underline{- 10} \\ 25 \\ \underline{- 25} \\ 00 \end{array}$$

c

$$\begin{array}{r} 124. \\ 8 \overline{) 992} \\ \underline{- 8} \\ 19 \\ \underline{- 16} \\ 32 \\ \underline{- 32} \\ 00 \end{array}$$

2 Divide using the standard division algorithm:

$$5,505 \div 15$$

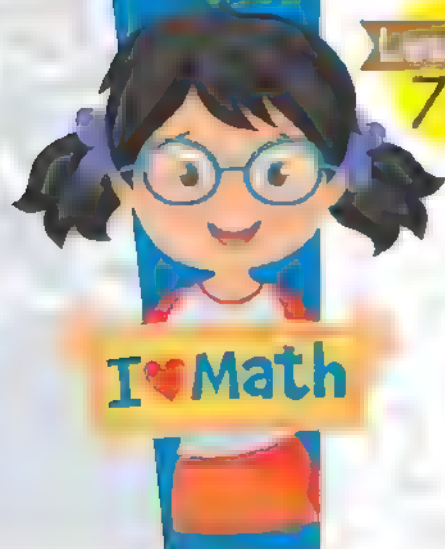
$$\begin{array}{r} 367. \\ 15 \overline{) 5,505} \\ \underline{- 45} \\ 100 \\ \underline{- 90} \\ 105 \\ \underline{- 105} \\ 000 \end{array}$$

$$\begin{array}{l} 15 \times 1 = 15 \\ 15 \times 2 = 30 \\ 15 \times 3 = 45 \\ 15 \times 4 = 60 \\ 15 \times 5 = 75 \\ 15 \times 6 = 90 \\ 15 \times 7 = 105 \\ 15 \times 8 = 120 \\ 15 \times 9 = 135 \end{array}$$

Unit

5

Multiplication and Division with Decimals



Concept

5.1

Multiplying Decimals

Lessons

1 & 2

Multiplying by Powers of Ten

Multiplying Decimals by Whole Numbers

Learning Objectives:

By the end of these lessons, the student will be able to:

- Explain patterns when multiplying whole numbers by powers of ten.
- Multiply a decimal by a whole number.

Lessons

3 & 4

Multiplying Tenths by Tenths

Multiplying Using the Area of Rectangle Model

Learning Objectives:

By the end of these lessons, the student will be able to:

- Use models to represent multiplying decimals.
- Explain patterns when multiplying Tenths by Tenths.
- Estimate products of decimals.
- Use the area model to multiply decimals.

Lessons

5 & 6

Multiplying Decimals through the Hundredths Place

Multiplying Decimals through the Thousandths Place

Learning Objectives:

By the end of these lessons, the student will be able to:

- Use the standard algorithm to multiply decimals through the Hundredths place.
- Use the standard algorithm to multiply decimals through the Thousandths place.
- Use estimation to check the reasonableness of his/her answers.

Lessons

7–9

Decimals and the Metric System

Measurement, Decimals, and Powers of Ten

Solving Multistep Story Problems

Learning Objectives:

By the end of these lessons, the student will be able to:

- Explain relationships between the metric system and decimals.
- Use decimals to represent equivalent measurements.
- Relate converting measurements in the metric system to multiplying by powers of ten.
- Solve multistep story problems involving addition, subtraction, and multiplication of decimals.

Lessons

182

Multiplying by Powers of Ten

Multiplying Decimals by Whole Numbers



Notes:

- You can add **zeros** to the left of the last non-zero digit, or add a **decimal point** to the whole number, or add **zeros** to the right of the decimal point without changing the value of the number.

Ex.

$$0008 = 008 = 08 = 8 = 8.0 = 8.00 = 8.000$$

Example

Multiplying by (10, 100, 1,000,...)

$$8.0 \times 10 = 80$$

$$8.00 \times 100 = 800$$

$$8.000 \times 1,000 = 8,000$$

When multiplying by 10, 100, or 1,000, move the decimal point to the **right** with the same number of **zeros**.

$$3.45 \times 10 = 34.5$$

$$3.45 \times 100 = 345$$

$$3.45 \times 1,000 = 3,450$$

Multiplying by (0.1, 0.01, 0.001,...)

$$8. \times 0.1 = 0.8$$

$$8. \times 0.01 = 0.08$$

$$8. \times 0.001 = 0.008$$

When multiplying by 0.1, 0.01, or 0.001, move the decimal point to the **left** by the same number of **decimal parts**.

$$21.7 \times 0.1 = 2.17$$

$$21.7 \times 0.01 = 0.217$$

$$21.7 \times 0.001 = 0.0217$$

The place of the whole number cannot be left blank, a "0" is added to save its place.

Note:

• Note the following examples:

$$\begin{array}{lcl} 12,000 & \leftarrow 1,000 \times & \\ 1,200 & \leftarrow 100 \times & \\ 120 & \leftarrow 10 \times & \end{array} \quad \begin{array}{c} \boxed{12} \\ \boxed{1.2} \\ \boxed{0.12} \end{array} \quad \begin{array}{lcl} & \times 0.1 & \rightarrow 1.2 \\ & \times 0.01 & \rightarrow 0.12 \\ & \times 0.001 & \rightarrow 0.012 \end{array}$$

$$\begin{array}{lcl} 12,500 & \leftarrow 1,000 \times & \\ 1,250 & \leftarrow 100 \times & \\ 125 & \leftarrow 10 \times & \end{array} \quad \begin{array}{c} \boxed{12.5} \\ \boxed{1.25} \\ \boxed{0.125} \end{array} \quad \begin{array}{lcl} & \times 0.1 & \rightarrow 1.25 \\ & \times 0.01 & \rightarrow 0.125 \\ & \times 0.001 & \rightarrow 0.0125 \end{array}$$

1 Complete the following patterns:

a $9 \times 10 = \dots \mathbf{90} \dots$	b $1.2 \times 10 = \dots \mathbf{12} \dots$	c $23.5 \times 10 = \dots \mathbf{235} \dots$
$9 \times 100 = \mathbf{900}$	$1.2 \times 100 = \mathbf{120}$	$23.5 \times 100 = \mathbf{2350}$
$9 \times 1,000 = \mathbf{9,000}$	$1.2 \times 1,000 = \mathbf{1,200}$	$23.5 \times 1,000 = \mathbf{23500}$
$9 \times 0.1 = \dots \mathbf{0.9} \dots$	$1.2 \times 0.1 = \dots \mathbf{0.12} \dots$	$23.5 \times 0.1 = \dots \mathbf{2.35} \dots$
$9 \times 0.01 = \mathbf{0.09}$	$1.2 \times 0.01 = \mathbf{0.012}$	$23.5 \times 0.01 = \mathbf{0.235}$
$9 \times 0.001 = \mathbf{0.009}$	$1.2 \times 0.001 = \mathbf{0.0012}$	$23.5 \times 0.001 = \mathbf{0.0235}$

2 Complete the following:

a $4.2 \times 10 = \mathbf{42}$	b $360 \times 0.1 = \mathbf{36}$	c $7.4 \times 0.01 = \mathbf{0.074}$
d $1.245 \times 100 = \mathbf{124.5}$	e $602.1 \times 0.01 = \mathbf{6.021}$	f $14.14 \times 0.1 = \mathbf{1.414}$
g $0.2 \times 100 = \mathbf{20}$	h $1.3 \times 0.1 = \mathbf{0.13}$	i $12 \times 0.001 = \mathbf{0.012}$

3 Complete the following table:

x	10	100	1,000	1	0.1	0.01	0.001
3	30	300	3,000	3	0.3	0.03	0.003
30	300	3,000	30,000	30	3	0.3	0.03
0.3	3	30	300	0.3	0.03	0.003	0.0003

Learn

Multiplying Decimals by Whole Numbers

Note the following pattern:

$5 \times 0.3 = 1.5$ $\downarrow \quad \downarrow \quad \uparrow$ $5 \times 3 \text{ Tenths} = 15 \text{ Tenths}$ $5 \times \frac{3}{10} = \frac{15}{10}$	$4 \times 0.07 = 0.28$ $\downarrow \quad \downarrow \quad \uparrow$ $5 \times 7 \text{ Hundredths} = 28 \text{ Hundredths}$ $4 \times \frac{7}{100} = \frac{28}{100}$
$9 \times 0.15 = 1.35$ $\downarrow \quad \downarrow \quad \uparrow$ $9 \times 15 \text{ Hundredths} = 135 \text{ Hundredths}$ $9 \times \frac{15}{100} = \frac{135}{100}$	$13 \times 0.218 = 2.834$ $\downarrow \quad \downarrow \quad \uparrow$ $13 \times 218 \text{ Thousandths} = 2,834 \text{ Thousandths}$ $13 \times \frac{218}{1,000} = \frac{2,834}{1,000}$

► Generally:

- When multiplying a whole number by a decimal, we do the multiplication **without** the decimal point and then put the decimal point while maintaining the same number of **decimal parts**.

$$23 \times 0.9 = 20.7 \quad \leftarrow \quad \rightarrow 2.3 \times 9 = 20.7$$

$$23 \times 0.09 = 2.07 \quad \leftarrow \quad \rightarrow 0.23 \times 9 = 2.07$$

$$23 \times 0.009 = 0.207 \quad \leftarrow \quad \rightarrow 0.023 \times 9 = 0.207$$

4 Find the product of (34×23) , then complete:

a $3.4 \times 23 = 78.2$ d $34 \times 0.23 = 7.82$

b $0.34 \times 23 = 7.82$ e $0.034 \times 23 = 0.782$

c $34 \times 2.3 = 78.2$ f $34 \times 0.023 = 0.782$

$$\begin{array}{r} 34 \\ \times 23 \\ \hline 102 \\ + 680 \\ \hline 782 \end{array}$$

5 Find the product of:

a $0.2 \times 8 =$ **1.6**

b $0.07 \times 8 =$ **0.56**

c $9 \times 0.009 =$ **0.081**

d $7 \times 1.2 =$ **8.4**

e $6 \times 0.39 =$ **2.34**

f $9.07 \times 8 =$ **72.56**

g $0.142 \times 5 =$ **0.71**

h $0.025 \times 8 =$ **0.2**

i $0.125 \times 12 =$ **1.5**

Quiz

10

1 Choose the correct answer:

a $32.7 \times 10 =$ **327**

(3.27 or 0.327 or 32.70 or **327**)

b $850 \times 0.01 =$ **8.5**

(**8.5** or 85.0 or 0.85 or 850)

c $0.7 \times 0.04 =$ **0.028**

(0.28 or 2.8 or **0.028** or 280)

d $6.279 \times 10 =$ **62.79**

(0.6289 or **62.79** or 6.279 or 627.9)

2 Find the product of:

a $0.07 \times 5 =$ **0.35**

b $0.2 \times 6 =$ **1.2**

c $9 \times 0.009 =$ **0.081**

3 Given that, $362 \times 17 = 6154$. Put the decimal point in the suitable place.

a $3.62 \times 17 =$ **61.54**

b $36.2 \times 17 =$ **615.4**

c $0.362 \times 17 =$ **6.154**

Lessons

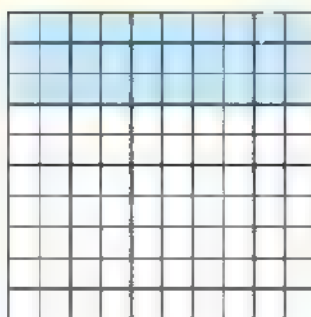
Multiplying Tenths by Tenths

Multiplying Using the Area of Rectangle Model

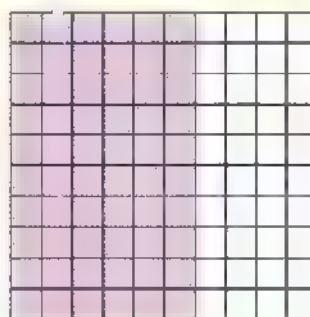
Multiplying Decimals with Arrays (The Base 10 Grids)

To multiply: 0.3×0.6 (using the Base 10 grids)

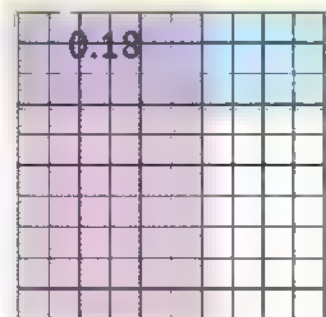
Color a horizontal part representing 0.3 (30 squares).



Color a vertical part representing 0.6 (60 squares) in a different color.



The squares with the two colors overlapping represent the product 0.18 (18 squares).



\times

$=$

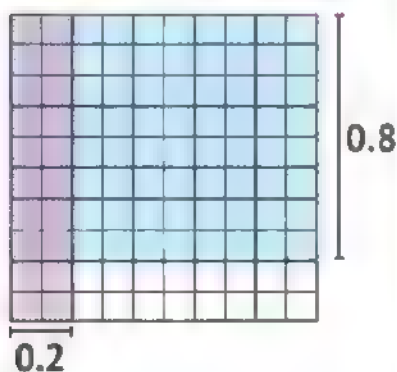
0.6

0.3

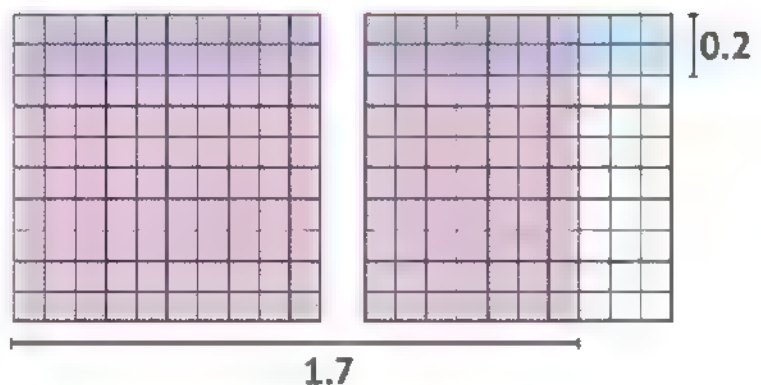
So, $0.3 \times 0.6 = 0.18$

Ex.

a $0.8 \times 0.2 = 0.16$

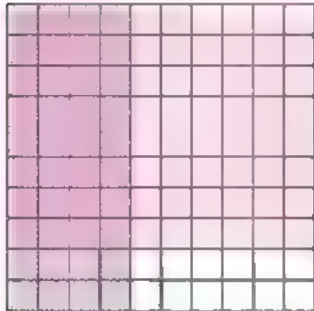


b $0.2 \times 1.7 = 0.34$

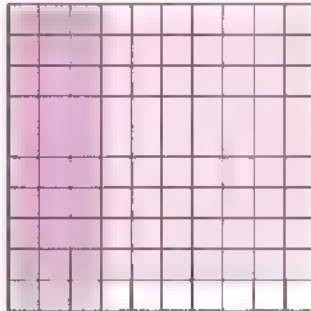


1 Use the Base 10 grids to find the product:

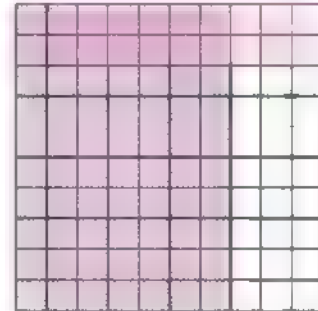
a $0.4 \times 0.8 = 0.32$



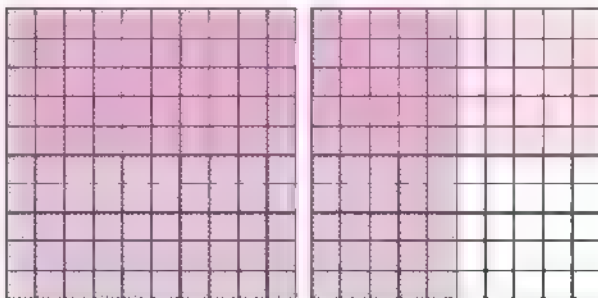
b $0.3 \times 0.9 = 0.27$



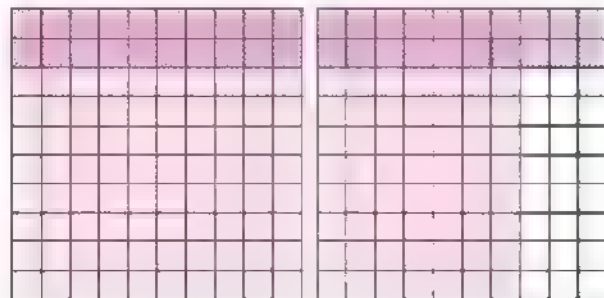
c $0.7 \times 0.2 = 0.14$



d $1.5 \times 0.5 = 0.75$



e $0.2 \times 1.7 = 0.34$



Lesson

Using the Area Model to Multiply Decimals

Ex. Multiply using the area model:

a 3.24×5.2

$$3.24 \times 5.2 = 15 + 1 + 0.2 + 0.6 \\ + 0.04 + 0.008 = 16.848$$

	3	0.2	0.04
5	15	1	0.2
0.2	0.6	0.04	0.008

b 3.8×0.27

$$3.8 \times 0.27 = 0.6 + 0.16 + 0.21 + 0.056 \\ = 1.026$$

	3	0.8
0.2	0.6	0.16
0.07	0.21	0.056

2 Multiply using the **area model**:

a 0.8×2.7

	2	0.7
0.8	1.6	0.56
	2.16	

b 4.2×3.6

	3	0.6
4	12	2.4
0.2	0.6	0.12
	15.12	

c 7.4×27.3

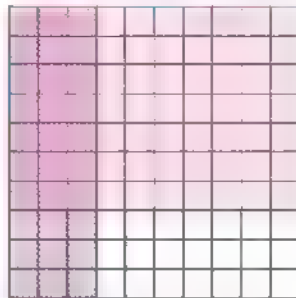
	20	7	0.3
7	140	49	2.1
0.4	8	2.8	0.12
	202.02		

Quiz

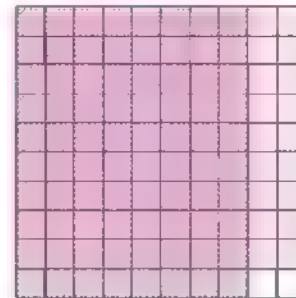
10

1 Use the **Base 10 grids** to find the product:

a $0.3 \times 0.7 = 0.21$

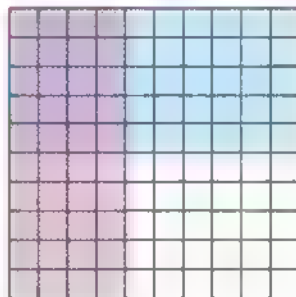


b $0.8 \times 0.9 = 0.72$

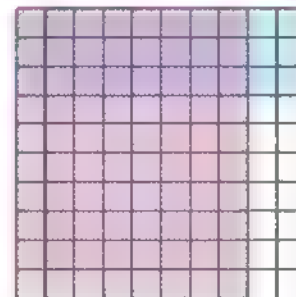


2 Complete the operation:

a $0.4 \times 0.5 = 0.2$



b $0.3 \times 0.8 = 0.24$



3 Multiply using the **area model**:

$3.27 \times 1.5 = 4.905$

	3	0.2	0.07
1	3	0.2	0.07
0.5	1.5	0.1	0.035

Lessons

546

Multiplying Decimals through the Hundredths Place Multiplying Decimals through the Thousandths Place

(6)

Lesson

Using the Standard Algorithm to Multiply Decimals

Ex. Multiply: **a** 32.5×7.3 **b** 3.25×7.3
c 3.25×73 **d** 32.5×73

- Multiply the **two numbers** without the decimals.
- Put the decimal point in the result from the **right**, after the number of digits equal to the sum of the decimal places in the two numbers before the multiplication.

$$\begin{array}{r} 13 \\ 1 \\ 325 \\ \times 73 \\ \hline 975 \\ + 22750 \\ \hline 23725 \end{array}$$

a $32.5 \times 7.3 = 237.25$

1 Decimal Place 1 Decimal Place = 2 Decimal Places

b $3.25 \times 7.3 = 23.725$

2 Decimal Places 1 Decimal Place = 3 Decimal Places

c $3.25 \times 73 = 237.25$

2 Decimal Places No Decimal Places = 2 Decimal Places

d $32.5 \times 73 = 2372.5$

1 Decimal Place No Decimal Places = 1 Decimal Place



Note:

- If the number of digits of the product is **less than** the sum of the number of decimal places, add **zeros** by the amount of increment to the **left** of the resulting number, and then put the decimal point.

Ex. $0.04 \times 0.2 = 0.008$

2 Decimal Places 1 Decimal Place = 3 Decimal Places

$4 \times 2 = 8$, the product of multiplication is one digit, and we need 3 digits, so we add two **zeros** and then put the decimal point.

1 If $24 \times 13 = 312$, then complete:

a $2.4 \times 13 = \dots\dots\dots 31.2 \dots\dots\dots$

b $24 \times 1.3 = \dots\dots\dots 31.2 \dots\dots\dots$

c $2.4 \times 1.3 = \dots\dots\dots 3.12 \dots\dots\dots$

d $0.24 \times 1.3 = \dots\dots\dots 0.312 \dots\dots\dots$

e $2.4 \times 0.13 = \dots\dots\dots 0.312 \dots\dots\dots$

f $2.4 \times 130 = \dots\dots\dots 312 \dots\dots\dots$

g $0.24 \times 13 = \dots\dots\dots 3.12 \dots\dots\dots$

h $0.24 \times 0.13 = \dots\dots\dots 0.0312 \dots\dots\dots$

2 In each of the following, put a decimal point in the product:

a $3.6 \times 4.1 = 1476$

b $8.7 \times 52 = 4524$

c $1.25 \times 3.7 = 4625$

d $7.74 \times 23 = 178.02$

e $92.3 \times 0.08 = 7384$

f $183 \times 0.06 = 1098$

g $75.63 \times 0.14 = 105882$

h $2.008 \times 42 = 84336$

3 Use the standard algorithm to multiply:

a

$$\begin{array}{r} 3.5 \\ \times 0.7 \\ \hline 2.45 \end{array}$$

b

$$\begin{array}{r} 7.6 \\ \times 3.4 \\ \hline 304 \\ + 2280 \\ \hline 25.84 \end{array}$$

c

$$\begin{array}{r} 2.31 \\ \times 1.4 \\ \hline 924 \\ + 2310 \\ \hline 3.234 \end{array}$$

d

$$\begin{array}{r} 7.23 \\ \times 0.12 \\ \hline 1446 \\ + 7230 \\ \hline 0.8676 \end{array}$$

Quiz

10

1 Given that, $49 \times 35 = 1715$. Put the decimal point in the suitable place:

a $4.9 \times 0.35 = 1715$

b $0.49 \times 350 = 171.5$

c $4.9 \times 3.5 = 17.15$

2 Put the decimal point in the suitable place:

a $1.7 \times 5.9 = 1003$

b $71.2 \times 0.06 = 4272$

c $55.4 \times 8.03 = 444862$

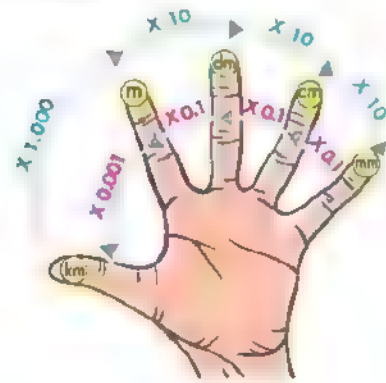
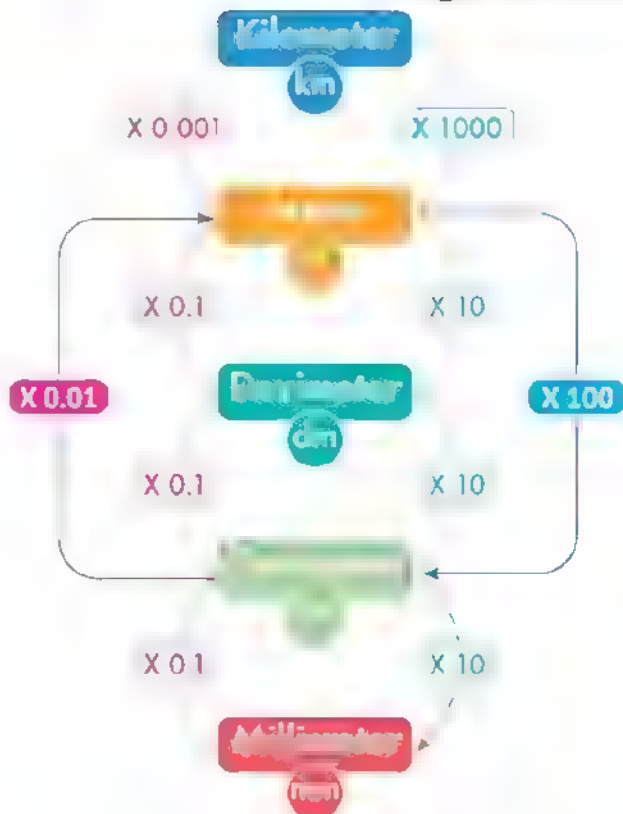
3 Find the product:

$$\begin{array}{r} 65.2 \\ \times 3.8 \\ \hline 5216 \\ + 19560 \\ \hline 247.76 \end{array}$$

Lessons

Decimals and the Metric System Measurement, Decimals, and Powers of Ten Solving Multistep Story Problems

Length Measurement Units



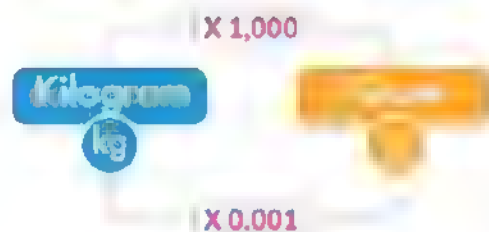
- $1 \text{ km} = 1 \times 1,000 = 1,000 \text{ m}$
- $1 \text{ m} = 1 \times 0.001 = 0.001 \text{ km}$
- $1 \text{ m} = 1 \times 10 = 10 \text{ dm}$
- $1 \text{ dm} = 1 \times 0.1 = 0.1 \text{ m}$
- $1 \text{ dm} = 1 \times 10 = 10 \text{ cm}$
- $1 \text{ cm} = 1 \times 0.1 = 0.1 \text{ dm}$
- $1 \text{ cm} = 1 \times 10 = 10 \text{ mm}$
- $1 \text{ mm} = 1 \times 0.1 = 0.1 \text{ cm}$

Capacity Measurement Units



- $1 \text{ liter} = 1 \times 1,000 = 1,000 \text{ mL}$
- $1 \text{ mL} = 1 \times 0.001 = 0.001 \text{ liter}$

Mass Measurement Units



- $1 \text{ kg} = 1 \times 1,000 = 1,000 \text{ g}$
- $1 \text{ g} = 1 \times 0.001 = 0.001 \text{ kg}$

1 Complete, as in the examples:

Ex. $10,870 \text{ g} = 10,870 \times 0.001 = 10.870 \text{ kg}$

$45.62 \text{ m} = 45.62 \times 100 = 4,562 \text{ cm}$

a $3,465 \text{ mL} = 3,465 \times 0.001 = 3.465 \text{ L}$

b $245 \text{ cm} = 245 \times 0.01 = 2.45 \text{ m}$

c $0.7 \text{ m} = 0.7 \times 100 = 70 \text{ cm}$

d $7.56 \text{ dm} = 7.56 \times 10 = 75.6 \text{ cm}$

e $25,378 \text{ g} = 25,378 \times 0.001 = 25.378 \text{ kg}$

f $56.89 \text{ L} = 56.89 \times 1,000 = 56,890 \text{ mL}$

g $56 \text{ m} = 56 \times 0.001 = 0.056 \text{ km}$

2 Answer the following:

- a Rania is a nurse in a hospital. She is getting wrap bandages from the storage closet for her patients. She needs 1.35 meters of bandages for each of her 4 patients. How many meters does she need?

She needs $= 1.35 \times 4 = 5.4 \text{ m}$

- b Dalia made a liter of sugar cane juice. She drank 320 milliliters.

Her father drank 0.25 liters. How much sugar cane juice is remaining? (In litres)

$320 + 250 = 570 \text{ mL}$

The remainder $= 1,000 - 570 = 430 \text{ mL} = 0.43 \text{ L}$

- c Ehab wants to know how much he has grown this year. In January, he was 138.2 centimeters. By the end of the year, he was 1.5 meters tall. How much did Ehab grow this year? (In centimeters)

Ehab grew $= 150 - 138.2 = 11.8 \text{ cm}$

- Ⓐ Marwan is designing a new circuit board for the computer he is repairing. The old circuit board measured 7.25 centimeters by 36 millimeters. He planned for the new circuit board to be 80 mm by 5.5 cm. What is the difference in area of the circuit boards? (In centimeters)

$$3.6 \times 7.25 = 26.1 \text{ cm}^2, \quad 5.5 \times 8 = 44 \text{ cm}^2$$

$$\text{The difference} = 44 - 26.1 = 17.9 \text{ cm}^2$$

Quiz

10

1 Choose the correct answer:

- Ⓐ 2,575 mL = **2.575** L (2.575 or 25.75 or 257.5 or 0.2575)
 Ⓑ 648 cm = **6.48** m (0.648 or 64.8 or **6.48** or 6.048)
 Ⓒ 0.75 m = **75** cm (**75** or 7.5 or 0.75 or 0.075)
 Ⓓ 12.87 kg = **12,870** g (1.287 or 128.7 or 1,287 or **12,870**)

2 Complete the following:

- Ⓐ 48.29 dm = **482.9** cm
 Ⓑ 9500 g = **9.5** kg
 Ⓒ 6.7 L = **6,700** mL
 Ⓓ 125 m = **0.125** km

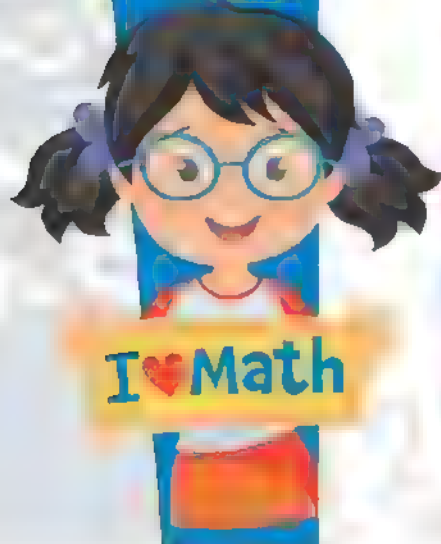
3 Find:

$$3.25 \text{ kg} + 1750 \text{ g} = **5** \text{ kg} = **5,000** \text{ g}$$

Unit

5

Multiplication and Division with Decimals



Concept

5.2

Dividing Decimals

Lessons

10&11

Dividing by Powers of Ten

Patterns and Relationships in Powers of Ten

Learning Objectives:

By the end of these lessons, the student will be able to:

- Explain patterns he/she notices when dividing by powers of 10
- Make connections between multiplying and dividing by powers of ten
- Explain the meaning of decimal division problems.

Lessons

12&13

Dividing Decimals by Whole Numbers

Dividing Decimals by Decimals

Learning Objectives:

By the end of these lessons, the student will be able to:

- Use the standard algorithm to divide decimals through the Thousandths place.
- Use estimation to check the reasonableness of his/her answers.



Lessons

Dividing by Powers of Ten

Patterns and Relationships in Powers of Ten

Dividing by (10, 100, 1,000,)

$\begin{array}{l} 8 \div 10 = 0.8 \\ 8 \div 100 = 0.08 \\ 8 \div 1,000 = 0.008 \end{array}$	<p>When dividing by 10, 100, or 1,000, move the decimal point to the left with the same number of zeros.</p>	$\begin{array}{l} 24.36 \div 10 = 2.436 \\ 24.36 \div 100 = 0.2436 \\ 24.36 \div 1,000 = 0.02436 \end{array}$
---	--	---

Dividing by (0.1, 0.01, 0.001,)

$\begin{array}{l} 8 \div 0.1 = 80 \\ 8 \div 0.01 = 800 \\ 8 \div 0.001 = 8,000 \end{array}$	<p>When dividing by 0.1, 0.01, or 0.001, move the decimal point to the right with the same number of decimal parts.</p>	$\begin{array}{l} 24.36 \div 0.1 = 243.6 \\ 24.36 \div 0.01 = 2,436 \\ 24.36 \div 0.001 = 24,360 \end{array}$
---	---	---

The whole number place cannot be left blank, so "0" is added to save its place.

1 Complete the following patterns:

a

$$\begin{array}{l} 9 \div 10 = \underline{0.9} \\ 9 \div 100 = \underline{0.09} \\ 9 \div 1,000 = \underline{0.009} \\ 9 \div 0.1 = \underline{90} \\ 9 \div 0.01 = \underline{900} \\ 9 \div 0.001 = \underline{9,000} \end{array}$$

b

$$\begin{array}{l} 1.42 \div 10 = \underline{0.142} \\ 1.42 \div 100 = \underline{0.0142} \\ 1.42 \div 1,000 = \underline{0.00142} \\ 1.42 \div 0.1 = \underline{14.2} \\ 1.42 \div 0.01 = \underline{142} \\ 1.42 \div 0.001 = \underline{1,420} \end{array}$$

c

$$\begin{array}{l} 230 \div 10 = \underline{23} \\ 230 \div 100 = \underline{2.3} \\ 230 \div 1,000 = \underline{0.23} \\ 230 \div 0.1 = \underline{2,300} \\ 230 \div 0.01 = \underline{23,000} \\ 230 \div 0.001 = \underline{230,000} \end{array}$$

2 Divide:

a $800 \div 1,000 = 0.8$

b $6,700 \div 100 = 67$

c $5.7 \div 0.1 = 57$

d $2.16 \div 0.01 = 216$

e $71 \div 1,000 = 0.071$

f $12.8 \div 0.01 = 1,280$

3 Complete the following:

a $0.4 \div \dots 10 \dots = 0.04$

b $0.4 \div 0.001 = 400$

c $29.08 \div 0.1 = 290.8$

d $0.1023 \div 0.01 = 10.23$

e $2,500 \div 1,000 = 2.5$

f $20 \div 0.001 = 20,000$

Metric Conversions with Multiplication and Division



Multiplying by (0.1, 0.01, 0.001 ...) is equivalent to Dividing by (10, 100, 1,000 ...)
 $2.5 \times 0.1 = 0.25$, $2.5 \div 10 = 0.25$ \rightarrow $2.5 \times 0.1 = 2.5 \div 10 = 0.25$

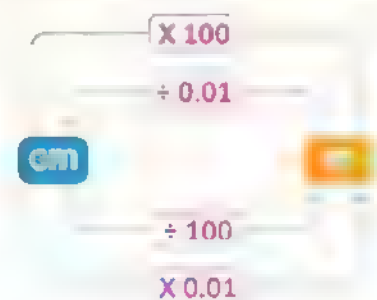
Multiplying by (10, 100, 1,000 ...) is equivalent to Dividing by (0.1, 0.01, 0.001 ...)
 $2.5 \times 10 = 25$, $2.5 \div 0.1 = 25$ \rightarrow $2.5 \times 10 = 2.5 \div 0.1 = 25$

From the above, we find that:

- When converting from one measurement unit to another, you can use multiplication or division.

Ex. Note the corresponding figure:

- To convert from meters to centimeters, you can multiply by 100 or divide by 0.01.
- To convert from centimeters to meters, you can multiply by 0.01 or divide by 100.



4 Complete each conversion. Then, write a multiplication equation and a division equation with the same answer:

Ex. $45 \text{ mm} = 4.5 \text{ cm}$
 $45 \times 0.1 = 4.5$
 $45 \div 10 = 4.5$

a $4.65 \text{ m} = 465 \text{ cm}$
 $4.65 \times 100 = 465$
 $4.65 \div 0.01 = 465$

b $5.6 \text{ kg} = 5,600 \text{ g}$
 $5.6 \times 1,000 = 5,600$
 $5.6 \div 0.001 = 5,600$

c $42 \text{ dm} = 420 \text{ cm}$
 $42 \times 10 = 420$
 $42 \div 0.1 = 420$

d $0.02 \text{ L} = 20 \text{ mL}$
 $0.02 \times 1,000 = 20$
 $0.02 \div 0.001 = 20$

e $235 \text{ m} = 0.235 \text{ km}$
 $235 \times 0.001 = 0.235$
 $235 \div 1,000 = 0.235$

Quiz

10

1 Choose the correct answer:

- a $7,000 \div 1,000 = 7$ (7 or 700 or 7000 or 0.7)
 b $3,627 \div 1,000 = 3.627$ (3,627 or 3.627 or 362.7 or 36.27)
 c $960 \div 0.01 = 96,000$ (96,000 or 9.6 or 960 or 9.600)
 d $4.08 \div 0.1 = 40.8$ (0.408 or 40.8 or 408 or 4080)
 e $969 \div 10 = 96.9$ (9690 or 0.969 or 9.69 or 96.9)

2 Complete the following:

- a $3.07 \div 0.1 = 30.7$ b $88.1 \div 100 = 0.881$
 c $29 \div 1,000 = 0.029$ d $18 \div 0.001 = 18,000$

3 Find in different ways:

$32.8 \text{ km} = 32.8 \div 0.001 = 32,800 \text{ m}$
 $= 32.8 \times 1,000 = 32,800 \text{ m}$

Lessons

Dividing Decimals by Whole Numbers
Dividing Decimals by Decimals

Dividing Decimals by Whole Numbers

- Assume that the two numbers are **whole numbers** and do the division.
- Put the decimal point in the result in the same position as the **dividend**.

Ex. Divide:

a $273.6 \div 8 = 34.2$

$$\begin{array}{r}
 034.2 \\
 8 \overline{) 273.6} \\
 \underline{- 24} \\
 33 \\
 \underline{- 32} \\
 16 \\
 \underline{- 16} \\
 0
 \end{array}$$

b $281.76 \div 12 = 23.48$

$$\begin{array}{r}
 023.48 \\
 12 \overline{) 281.76} \\
 \underline{- 24} \\
 41 \\
 \underline{- 36} \\
 57 \\
 \underline{- 48} \\
 96 \\
 \underline{- 96} \\
 00
 \end{array}$$

c $71.872 \div 32 = 2.246$

$$\begin{array}{r}
 02.246 \\
 32 \overline{) 71.872} \\
 \underline{- 64} \\
 78 \\
 \underline{- 64} \\
 147 \\
 \underline{- 128} \\
 192 \\
 \underline{- 192} \\
 0
 \end{array}$$

1 Use the **standard algorithm** to divide:

a $5.7 \div 3 = 1.9$

$$\begin{array}{r}
 1.9 \\
 3 \overline{) 5.7} \\
 \underline{- 3} \\
 27 \\
 \underline{- 27} \\
 0
 \end{array}$$

b $42.85 \div 5 = 8.57$

$$\begin{array}{r}
 08.57 \\
 5 \overline{) 42.85} \\
 \underline{- 40} \\
 28 \\
 \underline{- 25} \\
 35 \\
 \underline{- 35} \\
 00
 \end{array}$$

c $36.66 \div 13 = 2.82$

$$\begin{array}{r}
 02.82 \\
 13 \overline{) 36.66} \\
 \underline{- 26} \\
 106 \\
 \underline{- 104} \\
 26 \\
 \underline{- 26} \\
 00
 \end{array}$$

Dividing Decimals by Decimals

- Convert the divisor into a whole number: by moving the decimal point to the **right** (by multiplying by 10, 100, or 1,000...) according to the number of decimal places in the **divisor**.
- Move the decimal point to the **right** in the dividend by the same number of digits moved in the divisor.
- You may need to add **zeros** to the right of the dividend sometimes.
- Perform the division operation.

Ex. Divide:

a $17.01 \div 0.7 = 24.3$

$$\begin{array}{r} \downarrow \times 10 \quad \downarrow \times 10 \\ 170.1 \div 7 \\ \hline 7 \overline{) 170.1} \\ \underline{-14} \\ 30 \\ \underline{-28} \\ 21 \\ \underline{-21} \\ 0 \end{array}$$

b $8.4 \div 0.24 = 35$

$$\begin{array}{r} \downarrow \times 100 \quad \downarrow \times 100 \\ 840 \div 24 \\ \hline 24 \overline{) 840} \\ \underline{-72} \\ 120 \\ \underline{-120} \\ 0 \end{array}$$

c $2.4 \div 0.025 = 96$

$$\begin{array}{r} \downarrow \times 1,000 \quad \downarrow \times 1,000 \\ 2,400 \div 25 \\ \hline 25 \overline{) 2,400} \\ \underline{-225} \\ 150 \\ \underline{-150} \\ 000 \end{array}$$



Note:

Sometimes we may need to add a decimal point and an addition to complete the division process, as in the following examples:

1 When dividing $462 \div 12$, the quotient is 38 and the remainder is 6, so we add the decimal point and 0 to the dividend to complete the division ($462 \div 12 = 38.5$).

2 When dividing $97 \div 4$, the quotient is 24 and the remainder is 1, so we add the decimal point and 0 to the dividend twice to complete the division ($97 \div 4 = 24.25$).

<p>1</p> $\begin{array}{r} 12 \overline{) 462.0} \\ \underline{36} \\ 102 \\ \underline{-96} \\ 60 \\ \underline{-60} \\ 0 \end{array}$	<p>2</p> $\begin{array}{r} 4 \overline{) 97.00} \\ \underline{8} \\ 17 \\ \underline{-16} \\ 10 \\ \underline{-8} \\ 20 \\ \underline{-20} \\ 0 \end{array}$
---	--

2 Use the standard algorithm to divide:

a $183.6 \div 34 = 183.6 \div 34 = 5.4$

$$\begin{array}{r} 005.4 \\ 34 \overline{) 183.6} \\ \underline{-170} \\ 136 \\ \underline{-136} \\ 000 \end{array}$$

Draft

b $78.6 \div 0.6 = 786 \div 6 = 131$

$$\begin{array}{r} 131 \\ 6 \overline{) 786} \\ \underline{-6} \\ 18 \\ \underline{-18} \\ 6 \\ \underline{-6} \\ 0 \end{array}$$

Draft

c $98.48 \div 0.8 = 984.8 \div 8 = 123.1$

$$\begin{array}{r} 123.1 \\ 8 \overline{) 984.8} \\ \underline{-8} \\ 18 \\ \underline{-16} \\ 24 \\ \underline{-24} \\ 008 \\ \underline{-008} \\ 0 \end{array}$$

Draft

d $8.395 \div 0.23 = 839.5 \div 23 = 36.5$

$$\begin{array}{r} 36.5 \\ 23 \overline{) 839.5} \\ \underline{-69} \\ 149 \\ \underline{-138} \\ 115 \\ \underline{-115} \\ 000 \end{array}$$

Draft

e $9 \div 0.25 = 900 \div 25 = 36$

$$\begin{array}{r} 036 \\ 25 \overline{) 900} \\ \underline{-75} \\ 150 \\ \underline{-150} \\ 000 \end{array}$$

Draft

f $2 \div 1.25 = 200 \div 125 = 1.6$

$$\begin{array}{r} 001.6 \\ 125 \overline{) 200.0} \\ \underline{-125} \\ 750 \\ \underline{-750} \\ 000 \end{array}$$

Draft

Quiz

10

1 Use the standard algorithm to divide:

a $8.1 \div 3 = \dots\dots 2.7 \dots\dots$

$$\begin{array}{r} 2.7 \\ 3 \overline{) 8.1} \\ \underline{- 6} \\ 21 \\ \underline{- 21} \\ 00 \end{array}$$

b $31.8 \div 12 = \dots\dots 2.65$

$$\begin{array}{r} 02.65 \\ 12 \overline{) 31.80} \\ \underline{- 24} \\ 78 \\ \underline{- 72} \\ 60 \\ \underline{- 60} \\ 00 \end{array}$$

2 Use the standard algorithm to divide:

a $9.52 \div 0.7 = \dots\dots 13.6$

$$\begin{array}{r} 13.6 \\ 7 \overline{) 95.2} \\ \underline{- 7} \\ 25 \\ \underline{- 21} \\ 42 \\ \underline{- 42} \\ 00 \end{array}$$

b $62.7 \div 0.12 = \dots\dots 522.5$

$$\begin{array}{r} 0522.5 \\ 12 \overline{) 6270.0} \\ \underline{- 60} \\ 27 \\ \underline{- 24} \\ 30 \\ \underline{- 24} \\ 60 \\ \underline{- 60} \\ 00 \end{array}$$

Unit

6

Numerical Expressions and Patterns

Concept 6.1

Evaluating Numerical Expressions and Patterns

Lessons

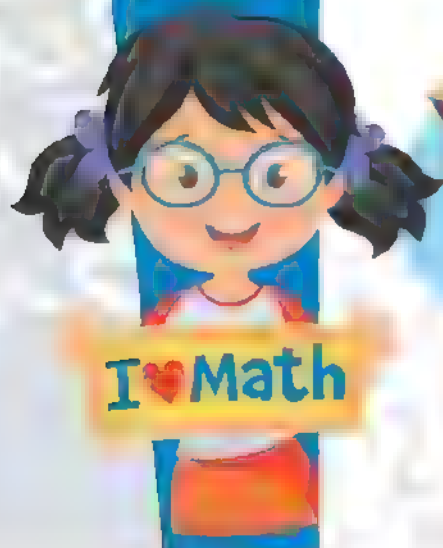
1-4

Order of Mathematical Operations
Numerical Expressions with Parentheses
Writing Expressions to Represent Scenarios
Identifying Numerical Patterns

Learning Objectives:

By the end of these lessons, the student will be able to:

- Use the order of operations to evaluate expressions with whole numbers and decimals.
- Identify how grouping symbols affect the order of operations.
- Evaluate an expression with grouping symbols.
- Evaluate expressions with grouping symbols.
- Write an expression to represent a written scenario.



Lessons 1-4

Order of Mathematical Operations Numerical Expressions with Parentheses Writing Expressions to Represent Scenarios Identifying Numerical Patterns

Learn

Basic Order of Operations

Perform operations inside parentheses if any \rightarrow Multiply or divide from left to right \rightarrow Add or subtract from left to right

Ex. Use the **order of operations** to evaluate the expression:

- 1 Perform the subtraction **inside the parentheses**. $45 \div 5 + (9 - 3) \times 4$
- 2 Perform the **division** operation. $= 45 \div 5 + 6 \times 4$
- 3 Perform the **multiplication** operation. $= 9 + 6 \times 4$
- 4 Perform the **addition** operation. $= 9 + 24$
 $= 33$

1 Use the **order of operations** to evaluate each expression, one step at a time:

a $597.8 \div 6.1 + 13 \times 1.7$

$$=$$

$$= 98 + 22.1$$

$$=$$

$$= 120.1$$

b $56.5 \times 2.3 - 15 + 12.7$

$$=$$

$$= 129.95 - 15 + 12.7$$

$$=$$

$$= 127.65$$

c $82.43 \times 3.1 + 4.05 \div 0.01 - 2.5$

$$=$$

$$= 255.533 + 405 - 2.5$$

$$=$$

$$= 658.033$$

d $90.7 + 116.6 \times 0.1 \times 2 - 20$

$$=$$

$$= 90.7 + 23.32 - 20$$

$$=$$

$$= 94.02$$

e $(14.5 + 12.3 \div 0.01) - 9.8$

$$=$$

$$= (14.5 + 1230) - 9.8$$

$$=$$

$$= 1234.7$$

f $(45.42 - 17.11) \times (82.9 + 17.1)$

$$=$$

$$= 28.31 \times 100$$

$$=$$

$$= 2,831$$

Learn

Expanded Order of Operations

Operations within parentheses ()

- 1 Multiply or divide from left to right
- 2 Add or subtract from left to right

Operations within brackets []

- 1 Multiply or divide from left to right
- 2 Add or subtract from left to right

Operations outside of parentheses or brackets

- 1 Multiply or divide from left to right
- 2 Add or subtract from left to right

Ex. Use the order of operations to evaluate the expression:

a Operations within parentheses () $3.5 \times [1.4 \div (7.5 + 2.5) - 0.04] + 2.84$

b Operations within brackets [] $= 3.5 \times [1.4 \div 10 - 0.04] + 2.84$

c Operations outside of brackets $= 3.5 \times 0.1 + 2.84$

$= 0.35 + 2.84 = 3.19$

2 Use the order of operations to evaluate each expression:

a $2.5 \div [0.5 \times (4.3 - 4.2)] - 2.4$

$= 2.5 \div [0.5 \times 0.1] - 2.4$

$= 2.5 \div 0.05 - 2.4$

$= 50 - 2.4$

$= 47.6$

b $[8.4 \div (3.6 + 0.4) \times 3] + 2.7$

$= [8.4 \div 4 \times 3] + 2.7$

$= 2.1 \times 3 + 2.7$

$= 6.3 + 2.7$

$= 9$

c $7.5 \times [4 - (7.6 + 2.4) \times 0.2]$

$= 7.5 \times [4 - 10 \times 0.2]$

$= 7.5 \times [4 - 2]$

$= 7.5 \times 2$

$= 15$

d $[(2.5 - 0.1) \times (0.07 + 0.03)] \div 1.2$

$= 2.4 \times 0.1 \div 1.2$

$= 0.24 \div 1.2$

$= 0.2$



Note:

- Changing the order of operations leads to a change in the value.
- Note the following examples:

a $10 - 0.1 \times 1.6 + 2$

$= 10 - 0.16 + 2$

$= 9.84 + 2$

$= 11.84$

b $10 - 0.1 \times (1.6 + 2)$

$= 10 - 0.1 \times 3.6$

$= 10 - 0.36$

$= 9.64$

c $(10 - 0.1) \times (1.6 + 2)$

$= 9.9 \times (1.6 + 2)$

$= 9.9 \times 3.6$

$= 35.64$

3 Use the order of operations to evaluate each expression:

$$\begin{aligned}
 \text{a } 30 \times 2.5 + 47.18 - 3.12 \div 0.1 \\
 &= 75 + 47.18 - 31.2 \\
 &= 122.18 - 31.2 \\
 &= 90.98
 \end{aligned}$$

$$\begin{aligned}
 \text{b } 30 \times (2.5 + 47.18 - 3.12 \div 0.1) \\
 &= 30 \times (2.5 + 47.18 - 31.2) \\
 &= 30 \times 18.48 \\
 &= 554.4
 \end{aligned}$$

$$\begin{aligned}
 \text{c } 30 \times [2.5 + (47.18 - 3.12) \div 0.1] \\
 &= 30 \times [2.5 + 44.06 \div 0.1] \\
 &= 30 \times [2.5 + 440.6] \\
 &= 30 \times 443.1 \\
 &= 13,293
 \end{aligned}$$

$$\begin{aligned}
 \text{d } (30 \times 2.5 + 47.18 - 3.12) \div 0.1 \\
 &= (75 + 47.18 - 3.12) \div 0.1 \\
 &= (119.06) \div 0.1 \\
 &= 1,190.6
 \end{aligned}$$

Learn

Writing Expressions to Represent Scenarios

Note the following mathematical expressions:

Add

$$\begin{array}{r}
 6.4 \text{ and } 2.7 \\
 \hline
 6.4 + 2.7
 \end{array}$$

Subtract

$$\begin{array}{r}
 2.4 \text{ from } 8.2 \\
 \hline
 8.2 - 2.4
 \end{array}$$

Multiply

$$\begin{array}{r}
 9.2 \text{ by } 0.1 \\
 \hline
 9.2 \times 0.1
 \end{array}$$

Divide

$$\begin{array}{r}
 83.2 \text{ by } 6.7 \\
 \hline
 83.2 \div 6.7
 \end{array}$$

Ex. Write an expression that matches the clues. Then, evaluate the expression:

Subtract 3.5 from 7.2 and divide the result by 10.

Multiply 2.5 by 0.1 and add 3.2.

Parentheses are used if the first operation is subtraction or addition.

$$\begin{aligned}
 (7.2 - 3.5) \div 10 \\
 = 3.7 \div 10 = 0.37
 \end{aligned}$$

No parentheses are needed if the first operation is multiplication or division.

$$\begin{aligned}
 (2.5 \times 0.1) + 3.2 \\
 = 0.25 + 3.2 = 3.45
 \end{aligned}$$

Multiply 217 by 0.01 and subtract the result from 4.8, then divide by 10.

$$\begin{aligned}
 (4.8 - 217 \times 0.01) \div 10 \\
 = (4.8 - 2.17) \div 10 = 2.63 \div 10 = 0.263
 \end{aligned}$$

Parentheses are placed to perform subtraction before division, and parentheses are not placed for multiplication because it is natural that it is performed first.

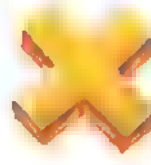
Keywords



Add
Plus
Sum
Total



Subtract
Difference
Take away
Minus



Multiply
Times
Double (X 2)
Twice (X 2)
Triple (X 3)
Product



Divide
Half (÷ 2)
Third (÷ 3)
Quotient
Distribute

4 For each problem, write an expression that matches the clues. Then, evaluate the expression:

- a Subtract 3.1 from 4.62. Then, multiply the result by 2.

$$(4.62 - 3.1) \times 2 = 3.04$$

- b Divide 93 by 0.3 and then add 114.7. After that, divide the result by 5.

$$(114.7 + 93 \div 0.3) \div 5 = 84.94$$

- c Add 30.4, 87 and 17.5. Then, subtract the result from 224.7. Multiply by 100.

$$[224.7 - (30.4 + 87 + 17.5)] \times 100 = 8,980$$

- d Multiply 7.6 by 100. Next, subtract 34.3. Then, add 12.4. Finally, divide the result by 0.1.

$$(7.6 \times 100) - 34.3 + 12.4 \div 0.1 = 7,381$$

- Ⓒ Find the difference between 10 and 9.27. Multiply by the sum of 54 and 46. Then, divide 1,168 by the result.

$$1,168 \div [(10 - 9.27) \times (46 + 54)] = 16$$

- 5** For each problem, write an expression that matches the scenario. Then, evaluate the expression:

- Ⓐ Kamel is saving money to buy a mobile. He currently has 1,000 LE. He begins working two jobs. At his first job, he saves 50 LE a week. At his second job, he saves 30 LE a week. He saves the money from his jobs for 4 weeks to add to his savings. How much does Kamel have saved at the end of the 4 weeks?

$$1,000 + (30 + 50) \times 4 = 1,320$$

- Ⓑ Mounir is lifting weights to help train for an upcoming competition. He attaches 4 weights to his bar, a pair of larger weights and a pair of smaller weights. Each large weight has a mass of 33.75 kilograms and is 17.5 kg heavier than each of the smaller weights. Together, the four weights have a mass of 100 kg. What is the mass of one of the smaller weights?

$$(100 - 33.75 \times 2) \div 2 = 16.25$$

Learn

Numerical Pattern

It is a sequence of numbers according to a certain rule.

Pattern rule is the relationship between the number and the number **before** it.

Ex. Note the following patterns:



Each number = the previous number + 3

The pattern rule is: $n+3$ (the variable n represents the previous number)



Each number = the previous number $\times 2$

The pattern rule is: $n \times 2$ (the variable n represents the previous number)

6 Write the **rule** for each pattern with a variable. Then, complete the pattern by finding the missing **values**:

a 5, 10, 15, 20, 25, 30, 35, 40, 45. Rule: $n+5$.

b 1, 2, 4, 8, 16, 32, 64, 128, 256. Rule: $n \times 2$.

c 45, 39, 33, 27, 21, 15, 9, 3. Rule: $n-6$.

d 28, 25, 22, 19, 16, 13, 10, 7, 4. Rule: $n-3$.

Learn

Input/Output Tables

Pattern Rule is the relationship between the input number and the output number.

Note the following patterns:

Input	Output
1	5
2	10
3	15
4	20

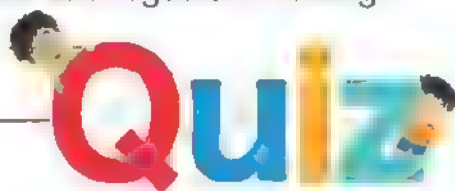
Output number = Input number \times 5
Rule: $n \times 5$

Input	Output
8	2
16	4
24	6
32	8

Output number = Input number \div 4
Rule: $n \div 4$

7 Write the rule for each pattern with a variable. Then, complete the pattern by finding the missing values:

<p>a</p> <table border="1"> <thead> <tr> <th>Input</th> <th>Output</th> </tr> </thead> <tbody> <tr> <td>8</td> <td>2</td> </tr> <tr> <td>12</td> <td>3</td> </tr> <tr> <td>16</td> <td>4</td> </tr> <tr> <td>20</td> <td>5</td> </tr> <tr> <td>24</td> <td>6</td> </tr> </tbody> </table> <p>Rule: $n \div 4$</p>	Input	Output	8	2	12	3	16	4	20	5	24	6	<p>b</p> <table border="1"> <thead> <tr> <th>Input</th> <th>Output</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>6</td> </tr> <tr> <td>3</td> <td>9</td> </tr> <tr> <td>4</td> <td>12</td> </tr> <tr> <td>5</td> <td>15</td> </tr> <tr> <td>6</td> <td>18</td> </tr> </tbody> </table> <p>Rule: $n \times 3$</p>	Input	Output	2	6	3	9	4	12	5	15	6	18	<p>c</p> <table border="1"> <thead> <tr> <th>Input</th> <th>Output</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>1</td> </tr> <tr> <td>8</td> <td>3</td> </tr> <tr> <td>10</td> <td>5</td> </tr> <tr> <td>12</td> <td>7</td> </tr> <tr> <td>14</td> <td>9</td> </tr> </tbody> </table> <p>Rule: $n - 5$</p>	Input	Output	6	1	8	3	10	5	12	7	14	9	<p>d</p> <table border="1"> <thead> <tr> <th>Input</th> <th>Output</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>4</td> </tr> <tr> <td>8</td> <td>6</td> </tr> <tr> <td>10</td> <td>8</td> </tr> <tr> <td>12</td> <td>10</td> </tr> <tr> <td>14</td> <td>12</td> </tr> </tbody> </table> <p>Rule: $n - 2$</p>	Input	Output	6	4	8	6	10	8	12	10	14	12
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Quiz

10

1 Choose the correct answer:

- a The first operation that should be done in: $(56.5 \times 2.3) - (15 + 12.7)$
is **Multiplying** (adding or subtracting or **multiplying** or dividing)
- b The first operation that should be done in: $(14.5 - 12.3) \div (0.01 + 9.8)$
is **Subtracting** (adding or **subtracting** or multiplying or dividing)
- c The first operation that should be done in: $(45.42 - 17.11) \times (82.9 + 17.1)$
is **Subtracting** (adding or **subtracting** or multiplying or dividing)

2 Use the order of operations to evaluate each expression, one step at a time:

$$\begin{aligned}
 2.5 \div [5 \times (6.8 - 6.7)] - 0.9 &= \dots\dots\dots 2.5 \div [5 \times 0.1] - 0.9 \\
 &= \dots\dots\dots 2.5 \div 0.5 - 0.9 \\
 &= \dots\dots\dots 4.1
 \end{aligned}$$

3 Subtract 4.7 from 9.62. Then, multiply the result by 3.5.

$$(9.62 - 4.7) \times 3.5 = 17.22$$

4 Write the rule for each pattern with a variable. Then, complete the pattern by finding the missing values.

1, 6, 11, 16, 21, ... **26** ..., **31** ... Rule ... **$N + 5$** .

Guide Answers

Math Book

Theme 1

Unit 1

Concept 1

Lesson 1

Decimals to the Thousandths Place

- 1 a 0.2 b 0.05 c 0.13
d 0.004 e 0.085 f 0.792
g 2.3 h 41.08 i 32.74
j 50.016 k 961.205
- 2 a Nine tenths. b Six hundredths.
c Sixty-nine hundredths
d Forty five hundredths
e Eight hundreds twenty-four thousandths
f Six and eight tenths
g Twenty-five and eight hundredths
h Nine hundreds forty-five and twenty-five hundredths
i Twenty and thirty-six thousandths
j Three hundred fifty-eight and one hundred twenty-four thousandths
- 3 a Tenths, 0.9 b Thousands, 7,000
c Tens, 0 d Ones, 5
- 4 a Hundredths, 0.06
b Hundreds, 700
c Thousandths, 0.009
d Ten Millions, 30,000,000 e Tenths, 0

Quiz

- 1 a 0.3 b Thousandths c 0.07
- 2 a Sixty-three and seven hundred five thousandths
b 24.048 c hundredths, 0.04
- 3 a → 3 b → 1
c → 4 d → 2

Lessons 203

Place Value Shuffle & Composing and Decomposing Decimals

- 1 a 6, increased from 6 to 60
8, increased from 80 to 800
3, increased from 300 to 3,000
386, increased from 386 to 3,860
 $386 \times 10 = 3,860$
b 5, increased from 0.5 to 5
2, increased from 2 to 20
25, increased from 2.5 to 25
 $2.5 \times 10 = 25$
- 2 a 5, decreased from 5 to 0.5
1, decreased from 10 to 1
9, decreased from 900 to 90
915, decreased from 915 to 91.5
 $915 \div 10 = 91.5$
b 7, decreased from 0.7 to 0.07
8, decreased from 8 to 0.8
8.7, decreased from 8.7 to 0.87
 $8.7 \div 10 = 0.87$
- 3 a 756.5 b 8.319 c 35.87
d 95.24 e 2,540 f 36
- 4 a $34.527 = 30 + 4 + 0.5 + 0.02 + 0.007$
 $= 34 + 0.527$
 $= 30 + 4 + 0.527$
b $21.045 = 20 + 1 + 0.04 + 0.005$
 $= 20 + 1 + 0.045$
 $= 21 + 0.045$
c $14.932 = 10 + 4 + 0.9 + 0.03 + 0.002$
 $= 14 + 0.932$
 $= 14 + 0.9 + 0.03 + 0.002$
d $231.128 = 200 + 30 + 1 + 0.1 + 0.02 + 0.008$
 $= 231 + 0.128$
 $= 231 + 0.1 + 0.02 + 0.008$
e $508.17 = 500 + 8 + 0.1 + 0.07$
 $= 508 + 0.17$
 $= 508 + 0.1 + 0.07$

Guide Answers

- 1 a 230 507 b 65.089 c 24.075
d 65.729 e 125 87

Quiz

- 1 a 361.7 b 62.48
c 20.156 d 508.207
2 a $\bullet 24 + 0.15 \bullet 20 + 4 + 0.15 \bullet 24 + 0.1 + 0.05$
b Thirty and twenty-five thousandths.
c $10,000 - 100 - 10$
3 a $\rightarrow 3$ b $\rightarrow 1$ c $\rightarrow 2$

Lesson 11

Comparing Decimals

- 1 a < b < c <
d > e > f =
2 a 1.440 b 1.3
3 a 20.001 b 3.009
4 53.6, 35.92 5 25.009, 2 509
6 $45.12 < 45.21 < 51.24 < 54.12 < 54.21$
7 $100.12 > 21.010 > 12.001 > 10.012 > 2.011$

Quiz

- 1 a < b > c >
2 $251.72 < 257.12 < 257.21 < 725.12$
3 $2.025 - 2.008 - 1.99 - 0.555$

Lesson 12

Rounding Decimals

- 1 a 3 b 66 c 20
2 a 0.7 b 45.5 c 4
3 a 6 36 b 0.25 c 10
4 a 754 b 56.3 c 60
d 782 48 e 1,000 f 0.04
5 a $56 / 56.3 / 56.28$
b $572 / 572.1 / 572.09$
c $1 / 0.9 / 0.90$ d $50 / 50.1 / 50.10$

Quiz

- 1 a 24 b 59.5 c 369.25
d 0 e 20 f 0.09
2 a Tenth. b Ten.
c Hundredth. d Ten.

Concept 1

Lessons 17

Estimating Decimal Sums & Modeling Decimal Addition

- 1 Answer by yourself.
2 a $5 + 0.95 + 21 + 0.002$
 $5 + 1 + 21 + 0 = 27$
b $6 + 0.552 + 82 + 0.495$
 $6 + 0.5 + 82 + 0.5 = 89$
c $12 + 0.954 + 3 + 0.45$
 $12 + 1 + 3 + 0.5 = 16.5$
3 a $2 + 4 = 6$ b $3.45 + 8.09 = 11.54$
c $10 + 4.6 = 14.6$
d $4.982 + 5.019 = 10.001$
4 Estimate: $54 + 46 = 100$
Yes, they have enough money.
5 a 0.7 b 0.75 c 0.43
d 1.52 e 1.43 f 1.63
6 a $0.25 + 0.47 = 0.72$
b $0.93 + 0.79 = 1.72$
7 a 3.89 b 4.135 c 6.858
d 128.44 e 234.72
8 a 48.126 b 34.548 c 171.28
d 41.39 e 61.89
9 a 7 b 11 c 44 d 129
10 $92.61 + 147.7 - 240 = 31 \text{ km}$

Quiz

- 1 a $1 + 0 = 1$ b $3.2 + 12.6 = 15.8$
c $55.76 + 36.96 = 92.72$ d 17
2 241.732

Lessons

Modeling Subtracting Decimals, Estimating Decimal Differences, Subtracting to the Thousandths Place & Decimal Story Problems

- 1 a 0.3 b 0.45 c 0.13
d 0.42 e 0.18 f 0.63
- 2 a $1.55 - 0.73 = 0.82$ b $0.46 - 0.46 = 0$
- 3 a 9.71 b 8.385 c 7.227
d 138.29 e 241.655
- 4 a 68.398 b 24.83 c 89.655
d 37.82 e 49.921
- 5 a 33 b 37 c 325 d 34
- 6 a 0.5 b 0.5 c 0.5 d 0
- 7 a 4.9 b 264.1 c 2.6 d 0.89
- 8 $67.3 - 11.7 = 55.6$ m
- 9 $53.25 + 46.8 = 100.05$ km
- 10 $16.7 + 16.7 = 33.4$ m
- 11 $16.7 - 3.25 = 13.45$ km

Quiz

- 1 a 13.82 b 30.06
c 438 d 5
- 2 a 204.334 b 65.912 c 71.408

Unit 2

Concept 1

Lesson 1

Expressions, Equations, and Variables

- 1 a Equation b Expression c Equation
d Expression e Other f Equation
g Expression h Other
- 2 a $w = 25.15 - 14.5$
b $y = 45 - 28$ c $m = 4,200 - 3,350$
d $a = 750,250 + 90,990$

Quiz

- 1 a equation b mathematical expression
c other
- 2 a $A = 38 - 23$ 3 b $B = 12 - 7$

Lessons 2-3

Variables in Equations & Telling Stories with Numbers

- 1 a $P = 10.224 - 8.235$
 $P = 1.989$
b $t = 2.445 + 0.26$
 $t = 2.705$
c $h = 6.82 - 1.023$
 $h = 5.797$
d $v = 100.01 - 42.809$
 $v = 57.201$
e $m = 9.271 - (5.52 + 2.041)$
 $m = 9.271 - 7.561$, $m = 1.71$
f $a = 5.477 - 1.52$
 $a = 3.957$
- 2 Answer by yourself.

Quiz

- 1 a $m = 5.2 - 3.7 = 1.5$
b $h = 4.89 + 3.2 = 8.09$
c $a = 9.9 - 3.6 = 6.3$
- 2 a 1.3 b 1.1
- 3 a $a = 12 + 15$ a = 27 LE

Concept 1

Lesson 1

Prime Factorization

- 1 a $16 = 2 \times 2 \times 2 \times 2$
b $20 = 5 \times 2 \times 2$
c $36 = 2 \times 2 \times 3 \times 3$
d $48 = 2 \times 3 \times 2 \times 2 \times 2$

Quiz

- 1 a 2 b 3
c 2, 3, 5
- 2 $18 = 2 \times 3 \times 3$
- 3 a 12 b 30



Lesson

Greatest Common Factors (GCF)

- 1 a 14 b 9
c 4 d 16
- 2 GCF = 5
Greatest number of equal groups = 5 groups.

Quiz

- 1 a 3 b 2 c 1
- 2 $12 = 2 \times 2 \times 3$
 $18 = 2 \times 3 \times 3$ GCF = $2 \times 3 = 6$
- 3 $20 = 2 \times 2 \times 5$
 $15 = 5 \times 3$ GCF = 5
Largest number is 5
Number of red apple = $20 \div 5 = 4$ apples.
Number of green apple = $15 \div 5 = 3$ apples.

Lessons

Identifying Multiples & Least Common Multiple (LCM)

- 1 a 0 / 2 / 4 / 6 / 8 / 10 / 12 / 14 / 16 / 18
b 0 / 5 / 10 / 15 / 20
c 0 / 10 / 20
- 2 a 0 / 3 / 6 / 9 / 12 / 15 / 18 / 21 / 24 / 27
b 0 / 6 / 12 / 18 / 24 / 30
c 0 / 9 / 18 d 0 / 18
- 3 Answer by yourself.
- 4 a GCF = 3 , LCM = 18
b GCF = 5 , LCM = 30
c GCF = 4 , LCM = 8
d GCF = 3 , LCM = 36

Quiz

- 1 a 8 b 10 c 0
- 2 $6 = 2 \times 3$
 $18 = 2 \times 2 \times 2 \times 3$
GCF = 2
LCM = $2 \times 2 \times 3 \times 2 = 24$
- 3 $6 \times 5 = 2 \times 3 \times 5$
 $3 \times 14 = 2 \times 3 \times 7$
GCF = $2 \times 3 = 6$
LCM = $2 \times 3 \times 5 \times 7 = 210$

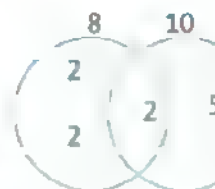
Lesson

Factors or Multiples?

- 1 a GCF = 4 , LCM = 60 b GCF = 8 , LCM = 48
c GCF = 5 , LCM = 90 d GCF = 9 , LCM = 54
- 2 LCM = 24 days. 3 GCF = 6 containers

Quiz

- 1 a Multiply b Factor c 1
d 1 e 14
- 2 $8 = 2 \times 2 \times 2$
 $10 = 2 \times 5$
GCF = 2
LCM = $2 \times 2 \times 2 \times 5 = 40$
- 3 LCM for 10 and 8 is 40
Together after 40 days.



Unit 3

Concept 1

Lesson

Using the Area Model to Multiply

- 1 a 988 b 2,232
c 22,932 d 22,274

- 2 a $8 \times 527 = 4,216$ b $59 \times 28 = 1,652$
 c $43 \times 856 = 36,808$ d $98 \times 603 = 59,094$
 3 a $187 \times 6 = 1,122 \text{ km}$
 b $60 \times 105 = 6,300 \text{ km}$

Quiz

- 1 65×23
 $1,200 + 180 + 100 + 15$
 $= 1,495$

60	5
20	1,200
3	180
	100
	15

 2 509×28
 $10,000 + 4,000 + 180 + 72$
 $= 14,252$

500	9
20	10,000
8	4,000
	180
	72

 3 49×5
 $200 + 45 = 245 \text{ eggs}$

40	9
5	200
	45

Lesson

The Distributive Property of Multiplication

- 1 a $7 \times 63 = 7 \times (60 + 3) = (7 \times 60) + (7 \times 3)$
 $= 420 + 21 = 441$
 b $9 \times 208 = 9 \times (200 + 8)$
 $= (9 \times 200) + (9 \times 8)$
 $= 1,800 + 72$
 $= 1,872$
 c $24 \times 38 = (20 + 4) \times (30 + 8)$
 $= (20 \times 30) + (20 \times 8) + (4 \times 30) + (4 \times 8)$
 $= 600 + 160 + 120 + 32 = 912$
 d $82 \times 107 = (80 + 2) \times (100 + 7)$
 $= (80 \times 100) + (80 \times 7) + (2 \times 100)$
 $+ (2 \times 7)$
 $= 8,000 + 560 + 200 + 14 = 8,774$
 e $62 \times 142 = (60 + 2) \times (100 + 40 + 2)$
 $= (60 \times 100) + (60 \times 40) + (60 \times 2) +$
 $(2 \times 100) + (2 \times 40) + (2 \times 2)$
 $= 6,000 + 2,400 + 120 + 200 + 80 + 4$
 $= 8,804$

Guide Answers

- f $43 \times 217 = (40 + 3) \times (200 + 10 + 7)$
 $= (40 \times 200) + (40 \times 10) + (40 \times 7)$
 $+ (3 \times 200) + (3 \times 10) + (3 \times 7)$
 $= 8,000 + 400 + 280 + 600 + 30 + 21$
 $= 9,331$
 2 - 1st way: $74 \times 12 = (70 + 4) \times (10 + 2) = 888$
 - 2nd way: $74 \times 12 = (70 + 4) \times (6 + 6) = 888$
 - 3rd way: $74 \times 12 = (40 + 30 + 4) \times (10 + 2) = 888$
 3 a $8 \times 37 = 8 \times (30 + 7) = 240 + 56 = 296$
 b $5 \times 264 = 5 \times (200 + 60 + 4)$
 $= (5 \times 200) + (5 \times 60) + (5 \times 4)$
 $= 1,000 + 300 + 20 = 1,320$
 c $26 \times 73 = (20 + 6) \times (70 + 3)$
 $= (20 \times 70) + (20 \times 3) + (6 \times 70) + (6 \times 3)$
 $= 1,400 + 60 + 420 + 18 = 1,898$
 4 a $24 \times 53 = 1,272$ b $28 \times 47 = 1,316$

Quiz

- 1 a 24×37 b 7×2
 2 35×27
 $= 945$

30	5
20	600
7	210
	100
	32

 3 $(40 \times 600) + (40 \times 20)$
 $+ (40 \times 7) + (3 \times 600)$
 $+ (3 \times 20) + (3 \times 7)$
 $627 \times 43 = 26,961$

600	20	7
40	24,000	800
3	1,800	60
		280
		21

Concept

Lessons

Multiplying by a 2-Digit Number Using Algorithm & Multiplying Multi-Digit Numbers & Multiplication Problems in the Real World

- 1 a 2,028 b 2,331
 c 1,748 d 2,438

Guide Answers

- 2 a 17,856 b 96,824
c 157,941 d 558,744
- 3 a 2,925 b 13,104 c 38,266
d 9,331 e 54,075
- 4 a 2,232 b 7,416
c 11,128 d 8,774
- 6 a Actual product: 3,551, Estimation: 3,500
b Actual product: 6,786, Estimation: 8,000
- 8 a $753 + 402 = 1,155$ kebabs,
 $1,155 \times 83 = 95,865$ g
b $170 \times 3 \times 18 = 9,180$ g
c $250 + 15 + 30 = 295$ mL
 $295 \times 18 = 5,310$ mL

Quiz



	600	20	7
40	24,000	800	280
3	1,800	60	21

$$3,000 + 600 + 150 + 600 + 120 + 30 = 4,500$$

$$\begin{array}{r} \text{b} \quad 256 \\ \times \quad 33 \\ \hline 768 \\ + \quad 7,680 \\ \hline 8,448 \end{array}$$

$$\begin{aligned} \text{c} \quad & (70 + 5) \times (200 + 40 + 8) \\ & = (70 \times 200) + (70 \times 40) + (70 \times 8) \\ & = (5 \times 200) + (5 \times 40) + (5 \times 8) \\ & = 14,000 + 2,800 + 560 + 1,000 + 80 + 40 \\ & = 18,600 \end{aligned}$$

$$\begin{array}{r} \text{2} \quad 189 \quad \rightarrow \quad 200 \\ \times \quad 34 \quad \quad \times \quad 30 \\ \hline 756 \quad \quad 6,000 \\ + \quad 5,670 \\ \hline 6,426 \end{array}$$

Theme 3

Unit 4

Concept

Lessons

Dividing by a Two-Digit Number & Estimating Quotients

- 1 a 15 (R1) b 69 (R6)
c 407 d 1,364
- 2 a 52 (R10) b 24 (R11) c 123
d 126 (R8) e 234
- 3 a 243 b 144
- 4 a 37 (R14), 40, reasonable
b 40 (R 22), 40, reasonable
c 312, 300, reasonable

Quiz

- 1 a 9 b 3 c 55 d 2
- 2 $673 \div 5 = 134$ (R3) 3 $4,000 \div 40 = 100$

Concept

Lessons

Using the division Algorithm, The Relation Between Division and Multiplication & Multistep Story Problems

- 1 a 157 b 649 (R2)
c 1,188 (R1) d 1,203 (R4)
- 2 a 23 b 1,048 (R16)
c 203 (R12) d 211 (R27)
- 3 a $350 + 12 = 29$ (R2), Number of bags = 30
b Paper Palace = $3 \times 762 = 2,286$ reams
Office Supply = $2,286 - 143 = 2,143$ reams
Sum = $762 + 2,286 + 2,143 = 5,191$ reams
c Red = $5 \times 24 = 120$ pens
blue = $4 \times 12 = 48$ pens
Each friend will get = $(120 + 48) \div 8$
 $= 168 \div 8 = 21$ pens

- d $72 \times 55 = 3,960$ books
 $3,960 \div 12 = 330$ books

Quiz

1 a 164

b

$$\begin{array}{r} 125 \\ 5 \overline{) 625} \\ \underline{- 5} \\ 12 \\ \underline{- 10} \\ 25 \\ \underline{- 25} \\ 00 \end{array}$$

c

$$\begin{array}{r} 124 \\ 8 \overline{) 992} \\ \underline{- 8} \\ 19 \\ \underline{- 16} \\ 32 \\ \underline{- 32} \\ 00 \end{array}$$

2

$$\begin{array}{r} 367 \\ 15 \overline{) 5505} \\ \underline{- 45} \\ 100 \\ \underline{- 90} \\ 105 \\ \underline{- 105} \\ 000 \end{array}$$

Unit 5

Concept 1

Lessons 1&2

Multiplying by Powers of Ten & Multiplying Decimals by Whole Numbers

- 1 a 90 / 900 / 9,000 / 0.9 / 0.09 / 0.009
 b 12 / 120 / 1,200 / 0.12 / 0.012 / 0.0012
 c 235 , 2350 , 23500 , 235 , 0.235 , 0.0235
- 2 a 42 b 36 c 0.074
 d 124.5 e 6.021 f 1.414
 g 20 h 0.13 i 0.012
- 3 $30 / 300 / 3,000 / 3 / 0.3 / 0.03 / 0.003$
 $300 / 3,000 / 30,000 / 30 / 3 / 0.3 / 0.03$
 $3 / 30 / 300 / 0.3 / 0.03 / 0.003 / 0.0003$
- 4 a 78.2 b 7.82 c 78.2

Guide Answers

- d 7.82 e 0.782 f 0.782
 5 a 1.6 b 0.56 c 0.081
 d 8.4 e 2.34 f 72.56
 g 0.71 h 0.2 i 1.5

Quiz

- 1 a 327 b 8.5
 c 0.028 d 62.79
- 2 a 0.35 b 1.2 c 0.081
- 3 a 61.64 b 615.4 c 6.154

Lessons 3&4

Multiplying Tenths by Tenths & Multiplying Using the Area of Rectangle Model

- 1 a 0.32 b 0.27 c 0.14
 d 0.75 e 0.34
- 2 a 2.16 b 15.12 c 202.02

Quiz

- 1 a 0.21 b 0.72
 2 a 0.2 b 0.24
 3 4.905

Lessons 5&6

Multiplying Decimals through the Hundredths Place & Multiplying Decimals through the Thousandths Place

- 1 [$24 \times 13 = 72 + 240 = 312$]
 a 31.2 b 31.2 c 3.12
 d 0.312 e 0.312 f 312
 g 3.12 h 0.0312
- 2 a 1476 b 452.4 c 4.625

Guide Answers

- d 178.02 e 7.384 f 10.98
 g 10.5882 h 84.336
 3 a 2.45 b 25.84
 c 3.234 d 0.8676

Quiz

- 1 a 1.715 b 171.5 c 17.15
 2 a 10.03 b 4.272 c 444.862
 3 247.76

Lessons

Decimals and the Metric System, Measurement, Decimals, and Powers of Ten & Solving Multistep Story Problems

- 1 a $3,465 \times 0.001 = 3.465$
 b $245 \times 0.01 = 2.45$
 c $0.7 \times 100 = 70$ d $7.56 \times 10 = 75.6$
 e $25,378 \times 0.001 = 25.378$
 f $56.89 \times 1,000 = 56,890$
 g $56 \times 0.001 = 0.056$
 2 a She needs = $1.35 \times 4 = 5.4$ m
 b $320 + 250 = 570$ mL
 The remainder = $1,000 - 570 = 430$ mL = 0.43 L
 c Ehab grew = $150 - 138.2 = 11.8$ cm
 d $3.6 \times 7.25 = 26.1$ cm², $5.5 \times 8 = 44$ cm²
 The difference = $44 - 26.1 = 17.9$ cm²

Quiz

- 1 a 2.575 b 6.48
 c 75 d 12,870
 2 a 482.9 b 9.5
 c 6,700 d 0.125
 3 5kg = 5,000 g

Concept

Lessons

Dividing by Powers of Ten & Patterns and Relationships in Powers of Ten

- 1 a 0.9 / 0.09 / 0.009 / 90 / 900 / 9,000
 b 0.142 / 0.0142 / 0.00142 / 14.2 / 142 / 1,420
 c 23 / 2.3 / 0.23 / 2,300 / 23,000 / 230,000
 2 a 0.8 b 67 c 57
 d 216 e 0.071 f 1,280
 3 a 10 b 0.001 c 0.1
 d 0.1023 e 2,500 f 20
 4 a 465 $465 \times 100 = 46,500$
 $465 \div 0.01 = 46,500$
 b 5,600 $5.6 \times 1,000 = 5,600$
 $5.6 \div 0.001 = 5,600$
 c 420 $42 \times 10 = 420$
 $42 \div 0.1 = 420$
 d 20 $0.02 \times 1,000 = 20$
 $0.02 \div 0.001 = 20$
 e 0.235 $235 \times 0.001 = 0.235$
 $235 \div 1,000 = 0.235$

Quiz

- 1 a 7 b 3.627 c 96,000
 d 40.8 e 96.9
 2 a 0.1 b 100
 c 29 d 18
 3 • 0.001 = 32,800
 • 1,000 = 32,800

Lessons

Dividing Decimals by Whole Numbers & Dividing Decimals by Decimals

- 1 a 1.9 b 8.57 c 2.82
2 a 5.4 b 131 c 123.1
d 36.5 e 36 f 1.6

Quiz

- 1 a 2.7 b 2.65
2 a 13.6 b 522.5

Unit 6

Concept 1

Lessons

Order of Mathematical Operations, Numerical Expressions with Parentheses & Writing Expressions to Represent Scenarios & Identifying Numerical Patterns

- 1 a 120.1 b 127.65 c 658.033
d 94.02 e 1234.7 f 2,831
2 a 47.6 b 9
c 15 d 0.2
3 a 90.98 b 554.4
c 13,293 d 1,190.6
4 a $(4.62 - 3.1) \times 2 = 3.04$
b $(114.7 + 93 \div 0.3) \div 5 = 84.94$
c $[224.7 - (30.4 + 87 + 17.5)] \times 100 = 8,980$

Guide Answers

- d $(7.6 \times 100) + 34.3 + 12.4 \div 0.1 = 7,381$
e $1.168 \div [(10 - 9.27) \times (46 + 54)] = 16$
5 a $1,000 + (30 + 50) \times 4 = 1,320$
b $(100 - 33.75 \times 2) \div 2 = 16.5$
6 a 35, 40, 45, Rule: $n + 5$
b 64, 128, 256, Rule: $n \times 2$
c 15, 9, 3, Rule: $n - 6$
d 10, 7, 4, Rule: $n - 3$
7 a 16, 20, 6, Rule: $n \div 4$
b 12, 5, 6, Rule: $n \times 3$
c 7, 14, Rule: $n - 5$
d 12, 12, Rule: $n - 2$

Quiz

- 1 a multiplying b subtracting
c subtracting
2 4.1
3 $(9.62 - 4.7) \times 3.5 = 17.22$
4 26,31 rule: $N + 5$

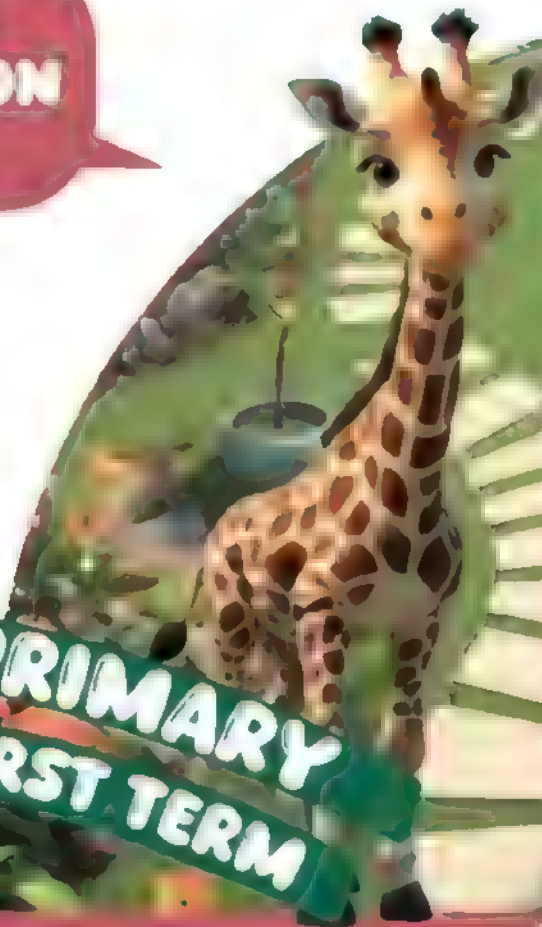
PONY

MATH

EXERCISES,
FINAL REVISION
& EXAMS

5

PRIMARY
FIRST TERM





Number Sense and Operations

Unit 1: Decimal Place Value and Computation Pages 4 - 31

Unit 2: Number Relationships Pages 32 - 57

Unit 3: Multiplication with Whole Numbers Pages 58 - 73



Mathematical Operations and Algebraic Thinking

Unit 4: Division with Whole Numbers Pages 75 - 91

Unit 5: Multiplication and Division with Decimals
Pages 92 - 120

Unit 6: Numerical Expressions and Patterns Pages 121 - 128

Assessments on Units Pages 129 - 152

Final Revision Pages 153 - 169

Model Exams Pages 170 - 203

Guide Answers Pages 204 - 230

Theme

1

Number Sense and Operations



Theme Units:

Unit

1

Decimal Place Value and Computation

Concept 1.1: Decimals to the Thousandths Place

Concept 1.2: Adding and Subtracting Decimals

Unit

2

Number Relationships

Concept 2.1: Expressions, Equations, and the Real World

Concept 2.2: Factors and Multiples

Unit

3

Multiplication with Whole Numbers

Concept 3.1: Models for Multiplication

Concept 3.2: Multiplying 4-Digit Numbers by 2-Digit Numbers

Unit 1 Decimal Place Value and Computation

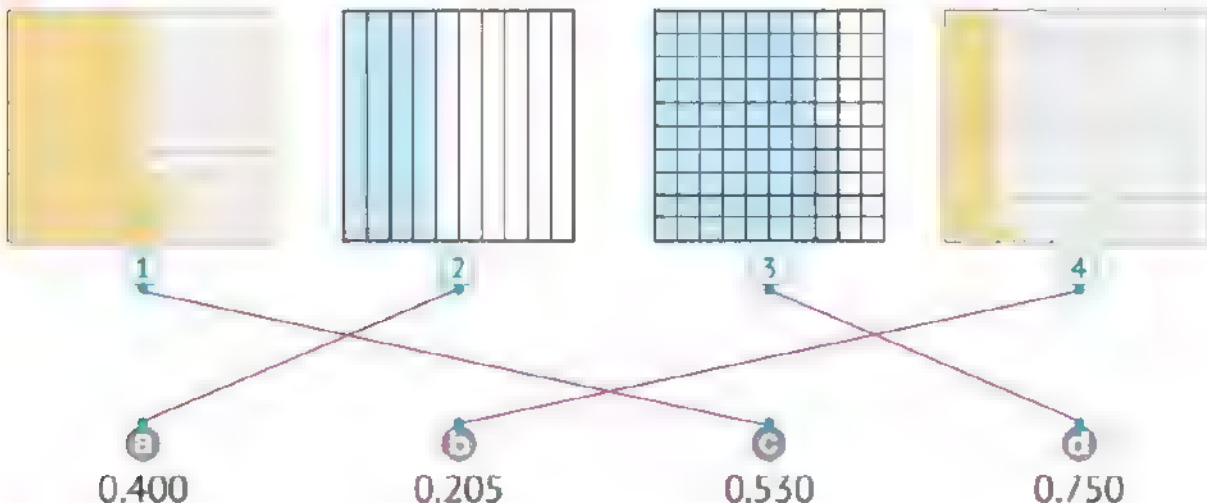
Concept 1.1 Decimals to the Thousandths Place

Lesson

1

Decimals to the Thousandths Place

1 Match each decimal model to the decimal number it represents:



2 Write the following numbers in the standard form:

- 1 Five Tenths: **0.5**
- 2 Three Hundredths: **0.03**
- 3 Sixteen Hundredths: **0.16**
- 4 Twenty-nine Thousandths: **0.029**
- 5 Five and three hundredths: **5.03**
- 6 Fifty-six and seventeen hundredths: **56.17**
- 7 One hundred fifteen and seventy-six hundredths: **115.76**
- 8 Three thousand, three hundred and three tenths: **3,300.3**
- 9 Three million, twenty-six thousand, seventy-five and one hundred seventy-two thousandths: **3,026,075.172**
- 10 Fifteen million, seven hundred thousandth, five and seventeen hundredths: **15,700,005.17**

3 Write the following numbers in the word form:

- 1 0.8: **Eight tenths**
- 2 0.23: **Twenty-three hundredths**
- 3 0.316: **Three hundred sixteen thousandths**
- 4 15.3: **Fifteen and three tenths**
- 5 5,328.96: **Five thousand, three hundred twenty-eight and ninety-six hundredths.**
- 6 13.629: **Thirteen and six hundred twenty-nine thousandths**
- 7 3,120,000.03: **Three million, one hundred twenty thousand and three hundredths**

4 Complete the following:

- 1 Three hundred fifty-nine million, forty thousand, six and seventy-nine hundredths (In standard form): **359,040,006.79**
- 2 Six milliard, seventy thousand, ninety-six and five thousandths (In standard form): **6,000,070,096.005**
- 3 9,200,000,065.027 (In word form): **Nine milliard, two hundred million, sixty-five and twenty-seven thousandths.**
- 4 205,009.04 (In word form): **Two hundred five thousand, nine and four hundredths**
- 5 In 457,258,350.68, the digit 6 is in the **Tenths** place and its value is **0.6**
- 6 In 500,725,235.102, the digit in the Hundredths is **0** and its value is **0**
- 7 The value of 9 in the Hundredths place is **0.09**
- 8 If the value of 3 is 0.3, then its place value is **Tenths**
- 9 $0.523 = 5$ Thousandths, 2 Hundredths, 5 Tenths
- 10 $0.709 = 7$ Tenths, 9 Thousandths

5 Choose the correct answer:

- 1 Seven milliard, fifty thousand and seven hundredths = **7,000,050.000.07**
(7,050.07 or 7,000,050.07 or **7,000,050,000.07** or 7,000,500,000.07)

- 2 56,000,500.035 (In word form):
(fifty-six thousand, five hundred and and thirty-five thousandths
or **fifty-six million, five hundred and thirty-five thousandths**
or fifty-six million, five hundred thousand and thirty-five thousandths
or fifty-six million, five hundred thousand and thirty-five hundredths)

- 3 The place value of 5 in 528,239.247 is **Hundred Thousands**
(Hundred Millions or **Hundred Thousands** or Hundreds or Hundredths)

- 4 The value of 0 in 247,369.205 is **0**
(0.001 or 0.01 or 0.1 or **0**)

- 5 If the value of 7 is 0.7, then its place value is **Tenths** .
(**Tenths** or Ones or Thousandths or Hundredths)

- 6 If the place value of 3 is Thousandths, then its value is **0.003** .
(**0.003** or 0.03 or 0.3 or 3,000)

- 7 $4 \frac{45}{100} =$ **4.45** (4.45 or 445 or 4.045 or 45.4)

- 8 $2.053 = 2 \frac{53}{1,000}$ ($2 \frac{53}{10}$ or $2 \frac{53}{100}$ or **$2 \frac{53}{1,000}$** or $\frac{253}{1,000}$)

- 9 The number of Tenths in 0.386 is **3** parts. (**3** or 30 or 83 or 386)

- 10 6 Hundredths = **0.060** (6 or 0.60 or **0.060** or 0.006)

- 11 6 Tenths, 9 Thousandths = **0.609** (**0.609** or 0.069 or 6.009 or 0.906)

Assessment

1

on Lesson 1

Unit 1

First: Complete the following:

- 1 Nine milliard, ninety thousand and nine thousandths (In digits): **9,000,090,000.009**
- 2 6,200.09 (In word form): **Six thousand, two hundred and nine hundredths**
- 3 The place value of 9 in 596,258.27 is **Ten Thousands**.
- 4 3 Tens + 3 Tenths = **30.3**
- 5 The value of 0 in 653,852.208 is **0**.

Second: Choose the correct answer:

- 1 Four hundred million, thirty thousand and three hundredths – **400,030,000.03**
 (a) **400,030,000.03** (b) 400,030.03 (c) 4,030,000.30 (d) 430.30
- 2 3,000,003.003 (In word form):
 (a) Three hundred, three million and three thousandths
 (b) **Three million, three and three thousandths**
 (c) Three million, three thousand and three thousandths
 (d) Three hundred thousand, three and three thousandths
- 3 In **40.056**, the place value of 5 is **Hundredths**.
 (a) 500.46 (b) 46.005 (c) **40.056** (d) 46,500
- 4 The digit that represents the **Thousandths** in 4,568.178 is **8**.
 (a) 1 (b) 7 (c) **8** (d) 4

Third: Match:

- | | |
|---|---------------------|
| 1 Nine hundred million and nine hundred thousandths | (a) 900,000.90 |
| 2 Nine hundred thousand and ninety hundredths | (b) 909.009 |
| 3 Nine hundred, nine and nine thousandths | (c) 900,000,000.900 |
| 4 Nine hundred million and nine thousandths | (d) 900,000.09 |
| 5 Nine hundred thousand and nine hundredths | (e) 900,000,000.009 |

Lessons 2&3 Place Value Shuffle Composing and Decomposing Decimals

1 Find the result of each of the following using the place value chart:

1 $4.52 \times 10 = 45.2$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
					4	.	5	2	
				4	5	.	2		

2 $456.258 \times 10 = 4,562.58$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
			4	5	6	.	2	5	8
		4	5	6	2	.	5	8	

3 $56.28 \div 10 = 5.628$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
				5	6	.	2	8	
					5	.	6	2	8

4 $253.9 \div 10 = 25.39$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
			2	5	3	.	9		
				2	5	.	3	9	

5 $9,832 \div 10 = 983.2$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
		9	8	3	2	.			
			9	8	3	.	2		

2 Complete the following:

- 1 The value of 9.25 increased when multiplying by 10 to **92.5**.
- 2 The value of **0.857** increased when multiplying by 10 to 8.57.
- 3 The value of 36.6 **increased** when multiplying by 10 to 366.
- 4 The value of 0.25 decreased when dividing by 10 to **0.025**.
- 5 The value of **248** decreased when dividing by 10 to 24.8.
- 6 The value of 1.25 **decreased** when dividing by 10 to 0.125.
- 7 $893 \div 10 = \dots \mathbf{89.3} \dots$
- 8 $6.38 \div 10 = \dots \mathbf{0.638} \dots$
- 9 $\mathbf{27} \dots \div 10 = 2.7$
- 10 $458.36 \times 10 = \dots \mathbf{4,583.6} \dots$
- 11 $\dots \mathbf{2.5} \dots \times 10 = 25$
- 12 $3,000 + 500 + 0.8 + 0.07 + 0.006 = \mathbf{3,500.876}$
- 13 $25 + 0.025 = \mathbf{25.025}$
- 14 $200 + 30 + 5 + 0.48 = \mathbf{235.48}$
- 15 $63 + 0.025 = \mathbf{63.025}$
- 16 $43.043 = 43 + \mathbf{0.043}$
- 17 $8,258.36 = 8,000 + 200 + 50 + 8 + \dots \mathbf{0.36} \dots$
- 18 $95.905 = \mathbf{90 + 5 + 0.9 + 0.005}$ (In expanded form)
- 19 $85.36 = \mathbf{8}$ Tens + $\mathbf{5}$ Ones + $\mathbf{3}$ Tenths + $\mathbf{6}$ Hundredths
- 20 $\mathbf{50.05} = 5$ Tens + 5 Hundredths

3 Choose the correct answer:

- 1 The value of **2.526** increased when multiplying by 10 to 25.26.
(25.26 or 252.6 or **2.526** or 2,526)
- 2 The value of **0.26** decreased when dividing by 10 to 0.026.
(0.026 or **0.26** or 2.6 or 26)
- 3 $\mathbf{25.8} \times 10 = 258$
(2580 or 258 or **25.8** or 2.58)
- 4 $45 \times 10 = \mathbf{450}$
(**450** or 0.45 or 4.5 or 40.5)
- 5 $8.05 \div 10 = \mathbf{0.805}$
(805 or 8.5 or 80.5 or **0.805**)
- 6 When all digits of a number move one place to the left, its value **increases**.
(decreases or **increases** or does not change or other)

Number Sense and Operations

- 7 When all digits of a number move one place to the **right**, its value decreases.
(right or left or other)
- 8 $23 + 0.02 + 0.003 = 23.023$ (2,302,00 or 2,323 or 23.023 or 23.23)
- 9 $824.12 = 824 + 0.12$
(824 + 1 + 2 or 824 + 12 or 824 + 0.12 or 800 + 200 + 4 + 10 + 2)
- 10 When 56.73 is multiplied by 10, the value of the digit 7
(does not change or increases from 0.7 to 7 or increases from 70 to 700 or decreases from 0.7 to 0.07)

4 Match:

- | | |
|---------------------|--------------------------------------|
| 1 58.25×10 | a $58 + 0.25$ |
| 2 $58.25 \div 10$ | b $582 + 0.5$ |
| 3 582.5×10 | c $5 + 0.825$ |
| 4 $582.5 \div 10$ | d $5,800 + 25$ |

5 Put 0.578 in the table, then multiply the result by 10 and complete:

Whole Number						Decimal Point	Decimals		
Thousands			Ones						
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
					0		.	5	7
					5	.	7	8	

- 1 The value of **5** (increased/decreased) when multiplying by 10 from **0.5** to **5**.
- 2 The value of **7** (increased/decreased) when multiplying by 10 from **0.07** to **0.7**.
- 3 The value of **8** (increased/decreased) when multiplying by 10 from **0.008** to **0.08**.
- 4 Therefore, the value of the whole number **0.578** (increased/decreased) by a factor of **10** from **0.578** to **5.78**, so
0.578 \times **10** = **5.78**

Assessment

2

on Lessons 2&3

Unit 1

First: Choose the correct answer:

- 1 The value of **45.26** increases when multiplying by 10 to **452.6**
 (a) 4,526 (b) 4.526 (c) **452.6** (d) 450.26
- 2 The value of **752.8** decreases when dividing by 10 to **75.28**
 (a) **752.8** (b) 7.528 (c) 750.28 (d) 75.028
- 3 $400 + 50 + 0.2 + 0.004 = \dots$ **450.204**
 (a) 450.24 (b) 450.024 (c) **450.204** (d) 45.204
- 4 $20.05 = \dots$ **$20 + 0.05$**
 (a) $20 + 5$ (b) $200 + 0.5$ (c) $2 + 0.005$ (d) **$20 + 0.05$**
- 5 $85 \div 10 = \dots$ **8.5**
 (a) **8.5** (b) 0.85 (c) 0.085 (d) 850

Second: Complete the following:

- 1 The value of **3.927** increases when multiplying by 10 to 39.27.
- 2 The value of 270 is decreased when multiplying by 0.1 to **27**.
- 3 $45.012 = 45 + \dots$ **0.012**
- 4 $500 + 20 + 3 + 0.8 + 0.07 + 0.006 =$ **523.876**
- 5 **459** $\div 10 = 45.9$

Third: Match:

- | | | |
|------------------|------------------|-----------|
| 1 78×10 | _____ | (a) 7.8 |
| 2 $78 \div 10 =$ | _____ | (b) 70.8 |
| 3 $70 + 0.8 =$ | _____ | (c) 780 |
| 4 $7 + 0.08 =$ | _____ | (d) 70.08 |
| 5 $70 + 0.08 =$ | _____ | (e) 7.08 |

Lessons 4&5 Comparing Decimals Rounding Decimals

1 Complete using (<, = or >):

- 1 $456.25 > 45.625$
- 2 $79.02 < 790.2$
- 3 $42.9 = 42.900$
- 4 $12.500 > 12.050$
- 5 $98.78 < 103.5$
- 6 $90.05 < 900.5$
- 7 $8.5 \times 10 > 85 \div 10$
- 8 $9.08 \times 10 > 9.08 \div 10$
- 9 $0.5 \times 10 < 50$
- 10 $85.03 = 80 + 5 + 0.03$
- 11 $75 + 0.05 < 75.50$
- 12 $107.05 > \text{One hundred and seventy-five hundredths}$
- 13 $800,008.3 < \text{Eight hundred eight thousand and three tenths}$
- 14 $700,050,005.50 = \text{Seven hundred million, fifty thousand, five and fifty hundredths}$
- 15 $400 + 4 + 0.4 + 0.004 > \text{Four hundred four and four hundred thousandths}$

2 Circle the greatest number:

- 1 27.03 , 270.3 , 2.703
- 2 56.38 , 56.038 , 560.38
- 3 180.06 , 18.006 , 180.60
- 4 900.900 , 900.090 , 900.009

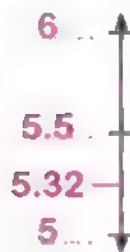
3 Circle the smallest number:

- 1 100.50 , 105.05 , 150.05
- 2 900.25 , 90.025 , 902.05
- 3 1,000.02 , 100,200 , 100.002
- 4 8.237 , 80.237 , 802.037

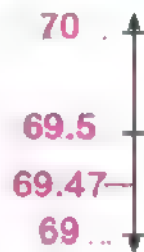
4 Round each of the following using the midpoint strategy:

1 To the nearest whole number:

a $5.32 \approx 5$



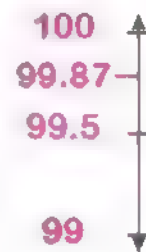
b $69.47 \approx 69$



c $0.689 \approx 1$

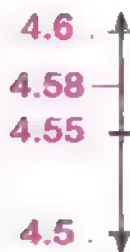


d $99.87 \approx 100$

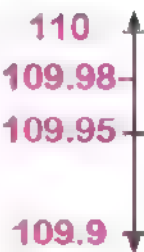


2 To the nearest Tenth:

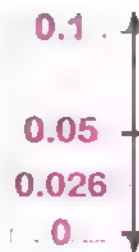
a $4.58 \approx 4.6$



b $109.98 \approx 110$



c $0.026 \approx 0$



d $56.874 \approx 56.9$

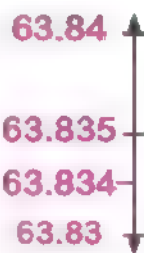


3 To the nearest Hundredth:

a $1.258 \approx 1.26$



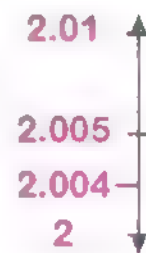
b $63.834 \approx 63.83$



c $0.999 \approx 1$

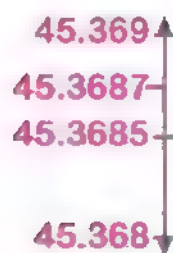


d $2.004 \approx 2.00$



4 To the nearest Thousandth:

a $45.3687 \approx 45.369$



b $0.3258 \approx 0.326$



c $0.9999 \approx 1$



5 Round each of the following numbers using the rounding rule strategy:

1 To the nearest whole number:

- | | | |
|-------------------------------------|--------------------------------------|-------------------------------------|
| a $5.28 \approx$ 5 | b $9.38 \approx$ 9 | c $0.368 \approx$ 0 |
| d $0.983 \approx$ 1 | e $12.5 \approx$ 13 | f $69.58 \approx$ 70 |
| g $100.7 \approx$ 101 | h $999.9 \approx$ 1000 | i $53.248 \approx$ 53 |

2 To the nearest Tenth:

- | | | |
|--|--------------------------------------|-------------------------------------|
| a $23.54 \approx$ 23.5 | b $4.258 \approx$ 4.3 | c $0.97 \approx$ 1.0 |
| d $18.329 \approx$ 18.3 | e $1.25 \approx$ 1.3 | f $3.678 \approx$ 3.7 |
| g $200.03 \approx$ 200.0 | h $59.97 \approx$ 60.0 | i $0.024 \approx$ 0 |

3 To the nearest Hundredth:

- | | | |
|--------------------------------------|--|--|
| a $7.258 \approx$ 7.26 | b $69.358 \approx$ 69.36 | c $0.293 \approx$ 0.29 |
| d $0.983 \approx$ 0.98 | e $0.125 \approx$ 0.13 | f $75.075 \approx$ 75.08 |
| g $4.007 \approx$ 4.01 | h $9.995 \approx$ 10.00 | i $20.002 \approx$ 20.00 |

4 To the nearest Thousandth:

- | | | |
|--|--|--|
| a $25.3697 \approx$ 25.370 | b $2,258.3645 \approx$ 2,258.365 | c $100.0027 \approx$ 100.003 |
| d $3.0223 \approx$ 3.022 | e $0.0257 \approx$ 0.026 | f $9.9999 \approx$ 10 |

6 Complete the following:

- | | |
|---|---------------------------------------|
| 1 $236.89 \approx$ 237 | (To the nearest Ones) |
| 2 $0.258 \approx$ 0.3 | (To the nearest one decimal place) |
| 3 $45.269 \approx$ 45.27 | (To the nearest 0.01) |
| 4 $5.2423 \approx$ 5.242 | (To the nearest $\frac{1}{1,000}$) |
| 5 $56.289 \approx$ 56.3 | (To the nearest Tenth) |
| 6 $0.368 \approx$ 0.37 | (To the nearest Hundredth) |
| 7 $0.909 \approx$ 1 | (To the nearest whole number) |
| 8 $56.28 \times 10 =$ 562.8 \approx 563 | (To the nearest whole number) |
| 9 $56.234 \div 10 =$ 5.6234 \approx 5.62 | (To the nearest two decimal places) |
| 10 $5.7 < \dots$ 5.72 $\dots < 5.8$ | [answers may vary] |

7 Choose the correct answer :

1 $56.73 < 56.8$ (56.69 or **56.8** or 56.075 or 56.729)

2 $98.25 > 98.205$ (100.05 or 98.52 or 98.263 or **98.205**)

3 $56.5 \times 10 > 565 \div 10$ ($<$ or $=$ or **$>$** or \leq)

4 $0.32 \times 10 > 3.2 \div 10$ ($<$ or $=$ or **$>$** or \leq)

5 $56 < 56.02 < 57$ (562 or 57.3 or 5.6 or **56.02**)

6 $2.456 \approx 2.5$ (To the nearest 0.1)
(2.445 or **2.456** or 0.536 or 2.05)

7 $69.45 \approx 69$ (To the nearest whole number)
(69.5 or 68.4 or 68.369 or **69.45**)

8 $56.298 \approx 56.30$ (To the nearest **0.01**)
(100 or 10 or **0.01** or whole number)

9 $63.245 \approx 60$ (To the nearest **10**)
(0.01 or 0.1 or **10** or whole number)

10 $56 + 0.02 + 0.007 \approx 56.03$ (To the nearest two decimal places)
(56.2 or 56.3 or 56.02 or **56.03**)

8 Arrange the following numbers:

1 56.25 , 56.52 , 56.025 , 56.502 , 56.052 (Ascendingly)

56.025 , **56.052** , **56.25** , **56.502** , **56.52**

2 6.005 , 5.006 , 50.06 , 60.05 , 5.060 (Descendingly)

60.05 , **50.06** , **6.005** , **5.060** , **5.006**

First: Choose the correct answer:

1 $45 + 0.5 < 450 + 0.05$

a ☒ $<$

b ☐ $>$

c ☐ $=$

d ☐ \leq

2 $75.34 \approx 75.3$

a ☐ 75.03

b ☐ 75.39

c ☐ 750.3

(To the nearest Tenth)

d ☒ 75.34

3 $78.098 \approx 78$

a ☐ 78.1

b ☒ 78

c ☐ 79

(To the nearest whole number)

d ☐ 7

4 $68.567 \approx 68.57$

a ☐ whole number

b ☐ Tenth

c ☒ Hundredth

(To the nearest Hundredth)

d ☐ Thousandth

5 $20.024 \approx 20.02$

a ☐ 20.002

b ☒ 20.024

c ☐ 0.025

(To the nearest Hundredth)

d ☐ 20.200

Second: Round the following numbers:

1 $458.025 \approx 458.03$ (To the nearest Hundredth)

2 $458.025 \approx 458$ (To the nearest Tenth)

3 $458.025 \approx 458$ (To the nearest whole number)

4 $458.025 \approx 460$ (To the nearest Ten)

5 $458.025 \approx 500$ (To the nearest Hundred)

Third: Compare using ($<$, $=$ or $>$):

1 $40.02 < 400 + 2$

2 $50.600 > 5.006$

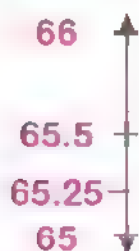
3 $500 + 90 + 3 + 0.8 + 0.07 = 593.87$

4 $300.03 <$ Three hundred and three tenths

5 $25 + 0.03 + 0.008 <$ Twenty-five and eighty-three hundredths

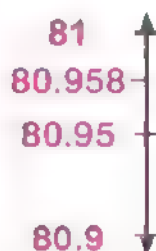
Fourth: Label the midpoint of the number line. Place the given decimal number at its proper location, and then round:

1 $65.25 \approx 65$



To the nearest whole number

2 $80.958 \approx 81$



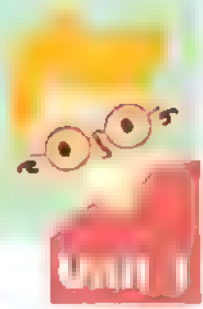
To the nearest Tenth

3 $2.875 \approx 2.88$



To the nearest Hundredth

Assessment on Concept 1



Complete the following:

- Five milliard, five million, five hundred thousand and five thousandths
= **5,005,500,000.005** (In digits)
- The smallest decimal number that can be formed from the digits (9, 8, 0, 5, 7) up to the Hundredths is **507.89**.
- In 8,567.4**91**, the place value of 9 is Hundredths and its value is **0.09**.
- The value of 586.47 is increased when multiplying by 10 to **5,864.7**.
- $458.025 \approx$ **458.0** (To the nearest Tenth)

Choose the correct answer:

- The numbers 800,000.08 (In word form):
 a) Eight hundred and eight hundredths
 b) Eight thousand and eight tenths
 c) Eight hundred and eight tenths
 d) **Eight hundred thousand and eight hundredths**
- The value of **752** is decreased when dividing by 10 to 75.2.
 a) 7,520 b) 7.52 c) **752** d) 75.200
- $4,000 + 40 + 0.4 + 0.04 =$ **4,040.44**
 a) **4,040.44** b) 44.44 c) 444.04 d) 4,400.40
- 75.599** \approx 75.60 (To the nearest Hundredth)
 a) 75.694 b) 75.607 c) **75.599** d) 75.697

Compare using (<, = or >):

- 247.089 < 247.1 2 45.25 < 45 + 25 3 202.25 > 20.225
- 20.05 = 20 + 0.05 5 1,000 + 50 + 0.2 + 0.008 < 1,500.280

Match:

- | | |
|---|-----------------|
| 1 Three thousand and three thousandths = | a 0.15 (2) |
| 2 150 Thousandths = | b 3,000.003 (1) |
| 3 $400 + 20 + 0.1 + 0.008 =$ | c 20 (5) |
| 4 $45.95 \times 10 =$ | d 420.108 (3) |
| 5 $19.999 \approx$ (To the nearest Hundredth) | e 459.5 (4) |

Answer the following:

Mazen is planning a trip from Cairo to El Fayoum. He will travel **147.72** kilometers.
 Round the distance to the nearest whole number. **147.72 \approx 148 Kilometers**

Concept 1.2 Adding and Subtracting Decimals

Lessons 6&7 Estimating Decimal Sums Modeling Decimal Addition

1 Estimate the sum of each of the following: (To the nearest Tenths)

1 Using rounding strategy:

a $56.35 + 25.04$

$56.4 + 25 \approx 81.4$

b $6.358 + 15.25$

$6.4 + 15.3 \approx 21.7$

c $74.82 + 26.17$

$74.8 + 26.2 \approx 101$

d $8.25 + 0.999$

$8.3 + 1 \approx 9.3$

e $63.25 + 7.76$

$63.3 + 7.8 \approx 71.1$

f $96.35 + 69.5$

$96.4 + 69.5 \approx 165.9$

2 Using benchmark decimals strategy:

a $0.92 + 0.56$

$1 + 0.5 \approx 1.5$

b $25.96 + 3.4$

$26 + 3.5 \approx 29.5$

c $6.9 + 3.02$

$7 + 3 \approx 10$

d $0.79 + 2.03$

$1 + 2 \approx 3$

e $4.7 + 9.05$

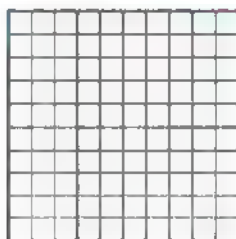
$4.5 + 9 \approx 13.5$

f $6.01 + 4.53$

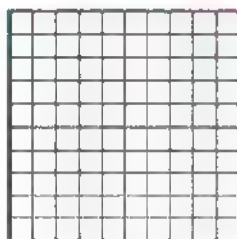
$6 + 4.5 \approx 10.5$

2 Add using the decimal model:

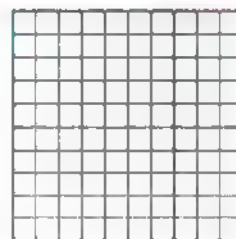
1 $0.12 + 0.56 = 0.68$



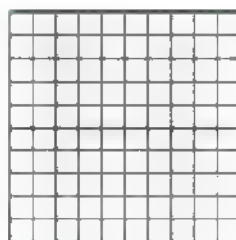
2 $0.4 + 0.24 = 0.64$



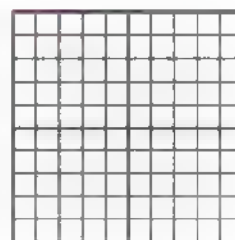
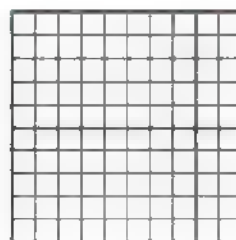
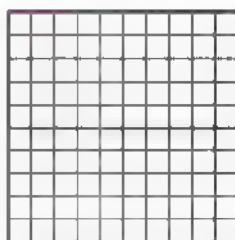
3 $0.15 + 0.45 = 0.60$



4 $0.75 + 0.68 = 1.43$



5 $0.85 + 0.78 = 1.63$



3 Add using the place value table:

1 $456.25 + 23.028 = \text{479.278}$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
			4	5	6	.	2	5	
				2	3	.	0	2	8
			4	7	9	.	2	7	8

2 $69,586.35 + 892.9 = \text{70,479.25}$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
	6	9	5	8	6	.	3	5	
			8	9	2	.	9		
	7	0	4	7	9	.	2	5	

3 $32.56 + 1,856.996 = \text{1,889.556}$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
				3	2	.	5	6	
		1	8	5	6	.	9	9	6
		1	8	8	9	.	5	5	6

4 $32,650.28 + 63,984.105 = \text{96,634.385}$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
	3	2	6	5	0	.	2	8	
	6	3	9	8	4	.	1	0	5
	9	6	6	3	4	.	3	8	5

Number Sense and Operations

5 $69,245.7 + 36.578 = 69,282.278$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
	6	9	2	4	5	.	7		
				3	6	.	5	7	8
	6	9	2	8	2		2	7	8

4 Find the result:

1 56.458

$+ 7.58$

64.038

2 483.258

$+ 736.27$

$1,219.528$

3 82.025

$+ 129.975$

212.000

4 0.369

$+ 12.57$

12.939

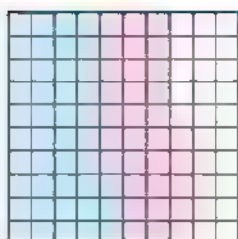
5 $56.367 + 56,246.34 = 56,302.707$

6 $56.31 + 8,000.249 = 8,056.559$

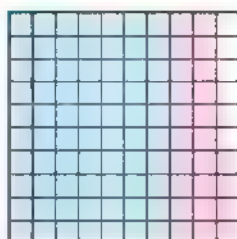
7 $39.56 + 245.36 = 284.92$

8 $638.47 + 56,324.98 = 56,963.45$

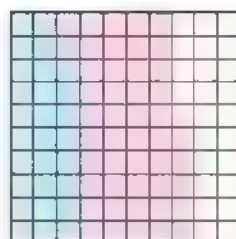
5 Write an expression to match the following models, and write an addition problem, then find the result:



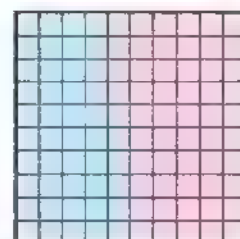
1 $0.43 + 0.32 = 0.75$



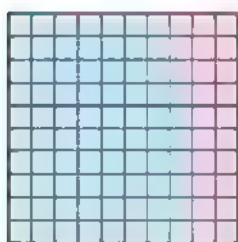
2 $0.70 + 0.24 = 0.94$



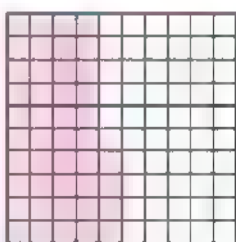
3 $0.28 + 0.48 = 0.76$



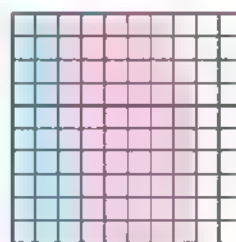
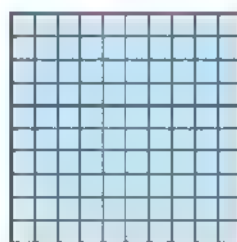
4 $0.46 + 0.54 = 1$



5 $0.78 + 0.66 = 1.44$



6 $1.24 + 0.54 = 1.78$



6 Complete the following:

1 7 Thousandths + 8 Thousandths = 15 Thousandths

2 45 Thousandths + 15 Thousandths = 60 Thousandths

3 $456 \text{ Thousandths} + 265 \text{ Thousandths} = 721 \text{ Thousandths}$

4 $5 \text{ Hundredths} + 68 \text{ Thousandths} = 118 \text{ Thousandths}$

5 $15 \text{ Hundredths} + 28 \text{ Hundredths} = 430 \text{ Thousandths}$

7 Complete the following:

1 The benchmark decimal closest to 0.99 is **1**

2 The benchmark decimal closest to 0.001 is **0**

3 The benchmark decimal closest to 1.57 is **1.5**

4 The estimate of the sum of $56.36 + 57.63$ using rounding to the nearest 0.1 strategy is **114**

5 The estimate of the sum of $7.59 + 3.89$ using rounding to the nearest whole number is **12**

6 $15 \text{ Hundredths} + 37 \text{ Hundredths} = 52 \text{ Hundredths}$

7 $5 \text{ Tenths} + 6 \text{ Hundredths} = 560 \text{ Thousandths}$

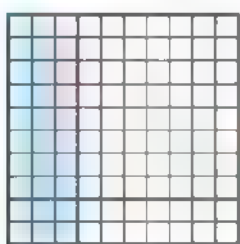
8 $45.36 + 12.43 = 57.79$

9 $0.45 + 0.55 = 1$

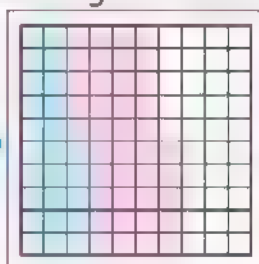
10 $0.2 + 0.5 + 1.3 = 2$

8 Choose the correct answer:

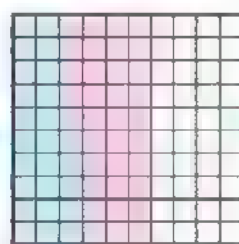
1 The model representing the addition problem $0.25 + 0.4$ is **Second model**



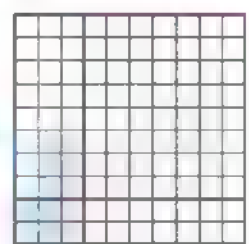
or



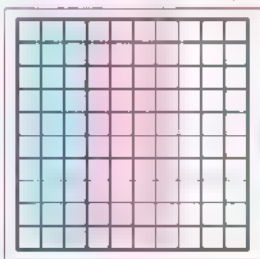
or



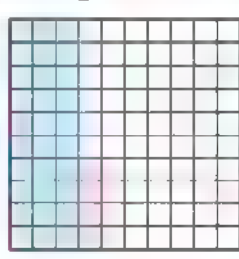
or



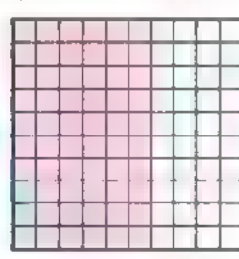
2 The model representing the addition problem $0.3 + 0.4$ is **First model**



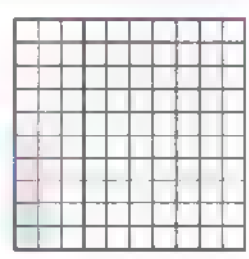
or



or



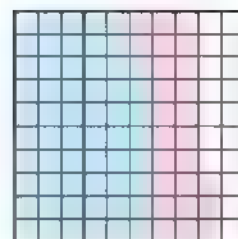
or



Number Sense and Operations

- 3 The addition problem that represents the opposite model is **0.58 + 0.25** (0.58 + 2.5 or 5.8 + 0.25

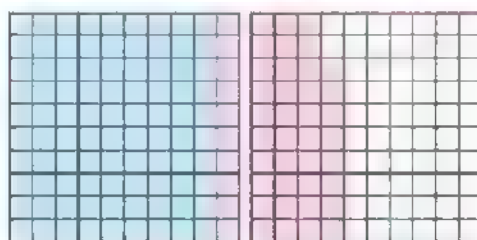
or 5.8 + 2.5 or **0.58 + 0.25**)



- 4 The addition problem that represents the following model is **0.9 + 0.48**.

(0.09 + 0.48 or **0.9 + 0.48**

or 90 + 48 or 0.9 + 4.8)



- 5 The benchmark decimal closest to 0.45 is **0.5**.

(0 or **0.5** or 1 or 1.5)

- 6 The benchmark decimal closest to 2.01 is **2**. (1 or 1.5 or **2** or 2.5)

- 7 The estimate of the sum of $3.752 + 2.358$ using rounding to the nearest 0.01 strategy is **6.11**.

(5 or 6.1 or 6.2 or **6.11**)

- 8 4 Tenths + 3 Thousandths = **403** Thousandths (0.403 or 7 or 43 or **403**)

- 9 $0.7 + 1.2 + 0.1 = 2$

(1.9 or 1.1 or **0.1** or 0.3)

- 10 $0.256 + 0.744 = 1$

(0.854 or 1.744 or 0.8 or **0.744**)

9 Answer the following:

- 1 Malak wants to cycle **40** km in a week. By Thursday, Malak had covered **34.99** km, and on Friday she had covered **4.01** km.

Did Malak achieve her goal or not? (Show your steps)

$$34.99 + 4.01 = 39.00 < 40$$

No, Malak didn't achieve her goal.

- 2 A merchant bought **953.543** kilograms of fruits. The next day, he bought **240.615** kilograms. Estimate the total amount bought by the merchant in the two days. Use the strategy of rounding to the nearest 0.1.

$$\text{Total} = 953.5 + 240.6 = 1,194.1 \text{ kg}$$

- 3 Fayrouz has **5** meters of fabric. If she needs **3.75** meters to make a dress, and **1.23** meters to make pants, estimate the length of the fabric that Fayrouz needs. Use the strategy of rounding to the nearest whole number. Is the fabric that she has enough or not?

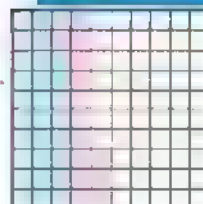
$$4 + 1 = 5 \text{ Yes, the fabric she has is enough.}$$

First: Choose the correct answer:

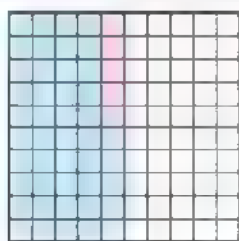
1 The expression that expresses the corresponding model is

- ☒ a $0.28 + 0.15$ ☐ b $2.8 + 1.5$
☐ c $2.8 + 0.15$ ☐ d $0.28 + 1.5$

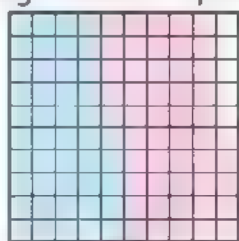
$$0.28 + 0.15$$



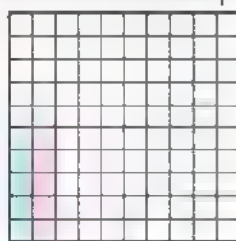
2 Which of the following models expresses the addition problem $0.45 + 0.57$



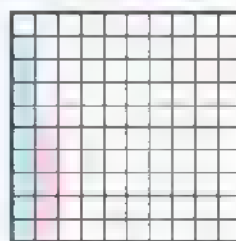
a



b



c



d

3 $5.25 + 32.7 = \dots\dots\dots 37.95$

- ☐ a 37.92 ☐ b 8.52 ☐ c 85.2 ☒ d 37.95

4 $0.75 + \dots\dots\dots 0.25 \dots\dots\dots = 1$

- ☐ a 1.25 ☒ b 0.25 ☐ c 0.35 ☐ d 1.75

5 $65.5 + 5 = \dots\dots\dots 70.5$

- ☐ a 66 ☒ b 70.5 ☐ c 65.55 ☐ d 655.5

Second: Complete the following:

1 The estimated sum of $4.6 + 5.3$ using rounding to the nearest whole number strategy is $\dots\dots\dots 5 + 5 = 10$

2 The estimated sum of $6.12 + 3.28$ using rounding to the nearest Tenth strategy is $\dots\dots\dots 9.4$

3 4 Hundredths + 27 Thousandths = $\dots\dots\dots 67$ Thousandths

4 $452.8 + 2.782 = \dots\dots\dots 455.582$ 5 $\dots\dots\dots 0.38 \dots\dots\dots + 0.62 = 1$

Third: Match:

1 $3.5 + 2.5 =$

2 $0.35 + 0.25 =$

3 $0.35 + 2.5 =$

4 $3.5 + 0.25 =$

5 $35 + 25 =$

a 0.6 (2)

b 2.85 (3)

c 6 (1)

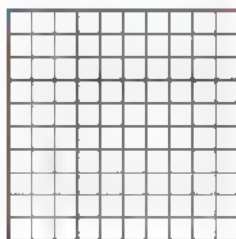
d 60 (5)

e 3.75 (4)

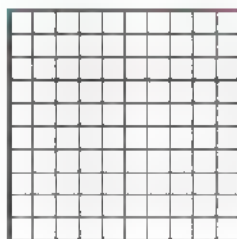
Lessons 8–11 Modeling Subtracting Decimals, Estimating Decimal Differences Subtracting to the Thousandths Place Decimal Story Problems

1 Subtract using the decimal model:

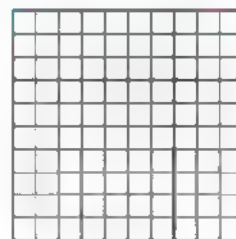
1 $0.45 - 0.27 = 0.18$



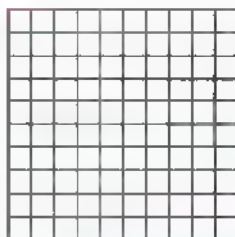
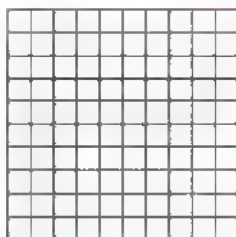
2 $0.8 - 0.39 = 0.41$



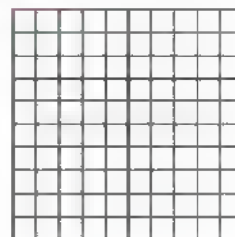
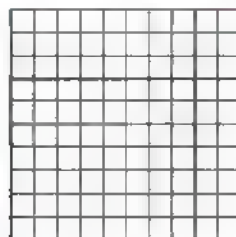
3 $0.78 - 0.5 = 0.28$



4 $1.5 - 0.82 = 0.68$



5 $1.35 - 0.9 = 0.45$



2 Subtract using the place value table:

1 $563.45 - 158.23 = 405.22$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
			5	6	3	.	4	5	
			1	5	8	.	2	3	
			4	0	5	.	2	2	

2 $700.25 - 56.258 = 643.992$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
			7	0	0	.	2	5	
				5	6	.	2	5	8
			6	4	3	.	9	9	2

3 $45.369 - 9.98 = \dots 35.389$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
				4	5	.	3	6	9
					9	.	9	8	
				3	5	.	3	8	9

4 $56.023 - 9.88 = \dots 46.143$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
				5	6	.	0	2	3
					9	.	8	8	
				4	6	.	1	4	3

5 $1,250 - 889.56 = \dots 360.44$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
		1	2	5	0	.			
			8	8	9	.	5	6	
			3	6	0	.	4	4	

6 $56,025.35 - 9,258.9 = 46,766.45$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
	5	6	0	2	5	.	3	5	
		9	2	5	8	.	9		
	4	6	7	6	6	.	4	5	

3 Find the result:

1 70.4
 $- 9.59$

60.81

2 523.147
 $- 92.57$

430.577

3 802.1
 $- 157.637$

644.463

4 5.105
 $- 0.89$

4.215

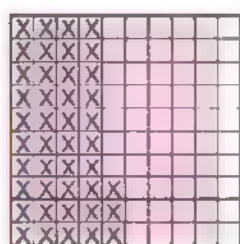
5 $900.25 - 56 = 844.25$

6 $87.025 - 15.98 = 71.045$

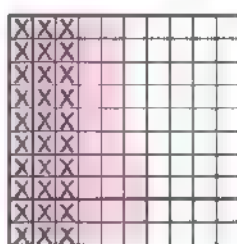
7 $39.56 - 24.36 = 15.2$

8 $21,000 - 23.45 = 20,976.55$

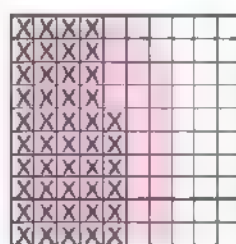
- 4 Write an expression to match the following models, and write the subtraction problem, then find the result:



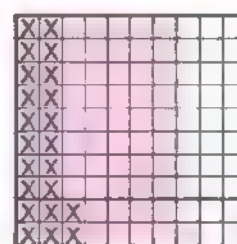
1 $0.90 - 0.43 = 0.47$



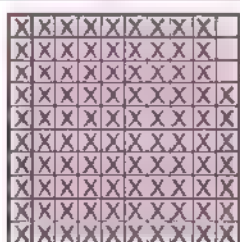
2 $0.54 - 0.30 = 0.24$



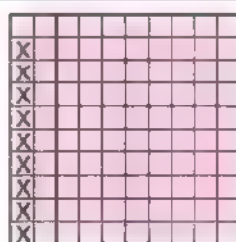
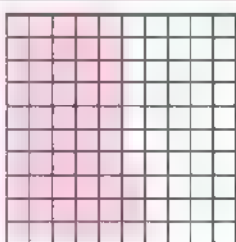
3 $0.68 - 0.46 = 0.22$



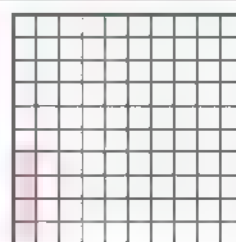
4 $0.71 - 0.22 = 0.49$



5 $1.53 - 0.97 = 0.56$



6 $1.04 - 0.09 = 0.95$



- 5 Estimate the difference of each of the following:

- 1 Using rounding to the nearest Tenth strategy:

a	$75.02 - 27.18$	Estimate	$75 - 27.2 = 47.8$
b	$9.235 - 5.2$	Estimate	$9.2 - 5.2 = 4$
c	$25,152.24 - 105.45$	Estimate	$25,152.2 - 105.5 = 25,046.7$
d	$45.258 - 7.39$	Estimate	$45.3 - 7.4 = 37.9$
e	$56.321 - 9.8$	Estimate	$56.3 - 9.8 = 46.5$
f	$765.3 - 7.589$	Estimate	$765.3 - 7.6 = 757.7$

- 2 Using benchmark decimals strategy:

a	$0.99 - 0.51$	Estimate	$1 - 0.5 = 0.5$
b	$25.01 - 3.45$	Estimate	$25 - 3.5 = 21.5$
c	$8.9 - 2.001$	Estimate	$9 - 2 = 7$
d	$1.98 - 0.53$	Estimate	$2 - 0.5 = 1.5$
e	$7.01 - 0.65$	Estimate	$7 - 0.5 = 6.5$
f	$15.01 - 7.96$	Estimate	$15 - 8 = 7$

6 Complete the following:

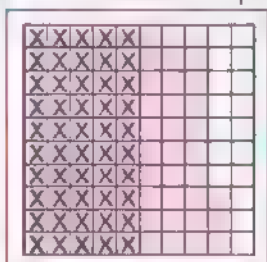
- 1 79 Thousandths – 15 Thousandths = **64** Thousandths
- 2 82 Thousandths – 47 Thousandths = **35** Thousandths
- 3 620 Thousandths – 174 Thousandths = **446** Thousandths
- 4 14 Hundredths – 37 Thousandths = **103** Thousandths
- 5 63 Hundredths – 18 Hundredths = **450** Thousandths
- 6 5 Tenths – 24 Thousandths = **476** Thousandths

7 Complete the following:

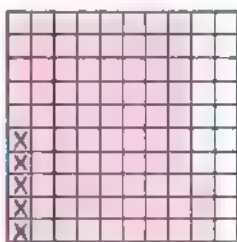
- 1 The estimate of $56.36 - 14.63$ using rounding to the nearest whole number strategy is **41**.
- 2 The estimate of $126.276 - 34.98$ using rounding to the nearest $\frac{1}{100}$ strategy is **91.3**.
- 3 The estimate of $10.893 - 9.75$ using rounding to the nearest 0.1 strategy is **1.1**.
- 4 The estimate of $9.99 - 7.58$ using the benchmark decimal strategy is **2.5**.
- 5 The estimate of $75.23 - 9.25$ using rounding to the nearest Ten **70**.
- 6 75 Hundredths – 9 Hundredths = **66** Hundredths
- 7 7 Tenths – **5** Hundredths = 650 Thousandths
- 8 $963.16 - 906.81 = 56.35$
- 9 $1 - 0.55 = 0.45$
- 10 $48.23 - 12.5 = 35.73$

8 Choose the correct answer:

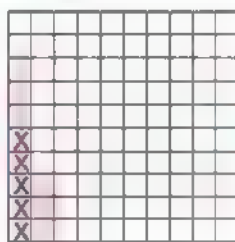
- 1 The model representing the subtraction problem $0.83 - 0.5$ is First model



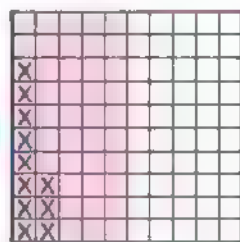
or



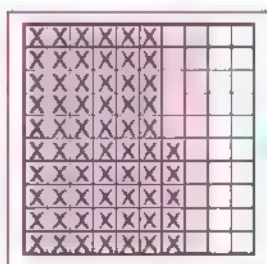
or



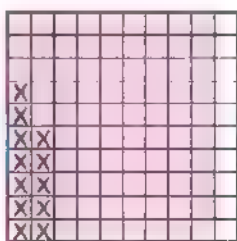
or



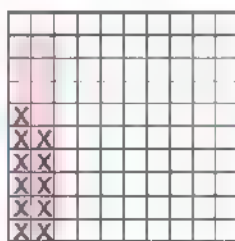
- 2 The model representing the subtraction problem $0.8 - 0.65$ is First model



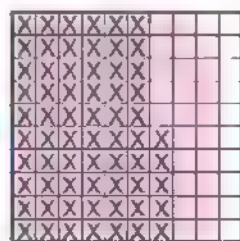
or



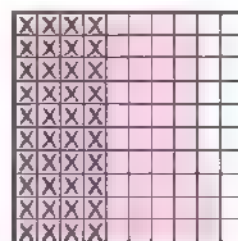
or



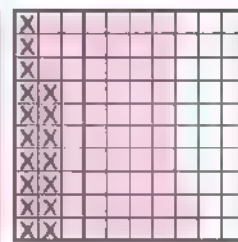
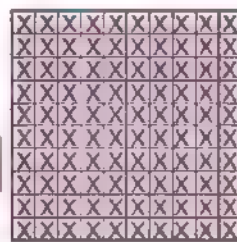
or



- 3 The subtraction problem that represents the opposite model is $0.83 - 0.4$ ($0.83 - 0.4$ or $8.3 - 0.4$ or $83 - 40$ or $0.83 - 0.04$)



- 4 The subtraction problem that represents the opposite model is $1.72 - 1.17$ ($1.72 - 0.17$ or $1.72 - 1.7$ or $1.72 - 1.17$ or $172 - 117$)



- 5 The estimate of $78.089 - 5.247$ using rounding to the nearest 0.01 strategy is 72.84 (72.84 or 72.842 or 72.9 or 65)
- 6 The estimate of $25.368 - 5.247$ using rounding to the nearest 0.1 strategy is 20.2 (20 or 20.2 or 20.12 or 25.121)
- 7 The estimate of $86.25 - 14.89$ using rounding to the nearest whole number strategy is 71 (71.36 or 71.4 or 71 or 70)

8 3 Tenths 15 Thousandths = 285 Thousandths

(2.85 or 285 or 0.15 or 0.285)

9 $12.78 - 3.98 = 8.8$

(3.98 or 21.58 or 11.9 or 13.66)

10 $1 - 0.786 = 0.214$

(786 or 0.786 or 1.214 or 0.213)

9 Answer the following:

- 1 Mohamed had 15,000 pounds. He bought a refrigerator for 7,520.25 pounds, and a washing machine for 5,640.5 pounds. How many pounds are left with Mohamed?

$7,520.25 + 5,640.5 = 13,160.75$ pounds

$15,000 - 13,160.75 = 1,839.25$ pounds

- 2 A road length of 675.5 km, of which the train traveled a distance of 239.47 km. What is the remaining distance from the road?

$675.5 - 239.47 = 436.03$ km

- 3 Tamer drinks 1.5 liters of water per day. If he drinks 0.5 liters in the morning and 0.7 liters at lunch, how many liters of water does he drink in the evening?

$0.5 + 0.7 = 1.2$ L.

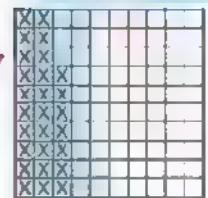
$1.5 - 1.2 = 0.3$ L.

First: Choose the correct answer:

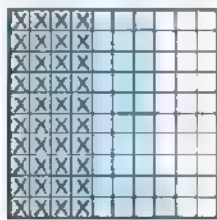
- 1 The expression that expresses the corresponding model is

a $0.42 - 0.27$ b $4.2 - 2.7$
c $4.2 - 0.27$ d $0.42 - 2.7$

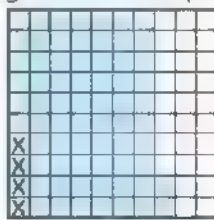
$$0.42 - 0.27$$



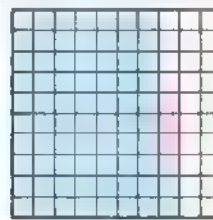
- 2 Which of the following models expresses the subtraction problem $0.72 - 0.4$?



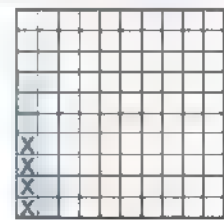
a



b



c



d

- 3 $7.15 - 2.6 =$ **4.55**

a 4.55 b 9.75 c 6.09 d 7.41

- 4 $1 -$ **0.53** $= 0.47$

a 1.47 b 1.53 c 0.53 d 0.47

- 5 $8 - 0.45 =$ **7.55**

a 8.45 b 8.55 c 7.45 d 7.55

Second: Complete the following:

- 1 The estimated difference of $4.2 - 1.8$ using rounding to the nearest whole number strategy is **2**.
- 2 The estimated difference of $18.46 - 7.25$ using rounding to the nearest Tenth strategy is **11.2**.
- 3 5 Hundredths + 35 Thousandths = **85** Thousandths

- 4 $32.7 + 2.079 =$ **34.779**

- 5 $1 - 0.47 =$ **0.53**

Third: Match:

- 1 $15.2 - 5.2$ 2 $1.52 - 0.52$ 3 $15.2 - 0.52$ 4 $152 - 5.2$ 5 $152 - 52$

a 1 b 10 c 100 d 14.68 e 146.8

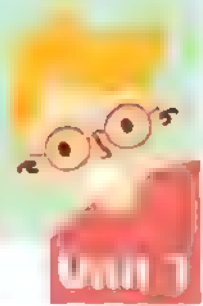
Fourth:

Emad caught three fish whose lengths were 29.28 cm, 29.255 cm, and 35.17 cm. What is their total length? What is the difference between the longest fish and the shortest fish?

$$\text{Sum} = 29.28 + 29.255 + 35.17 = 93.705 \text{ cm}$$

$$\text{Difference} = 35.17 - 29.255 = 5.915 \text{ cm}$$

Assessment on Concept 2



Complete the following:

- The estimated difference of $6.527 - 0.293$ using rounding to the nearest Tenth strategy is **6.2**
- 7 Hundredths + 24 Thousandths = **94** Thousandths
- $45.25 + \dots$ **45.25** = 90.5
- $59.126 - 42.35 = \dots$ **16.776**
- 5 Tenths - 5 Thousandths = **495** Thousandths

Choose the correct answer:

- The expression that expresses the corresponding model is **0.5 - 0.27**

a 0.5 - 0.27

b 0.5 - 2.7

c 0.5 + 0.27

d 0.5 + 27

- The expression that expresses the corresponding model is **0.22 + 0.30**

a 22 + 30

b 0.22 - 0.03

c 2.2 + 3.0

d 0.22 + 0.30

- 3** - 2.45 = 0.55

a 3

b 30

c 300

d 0.10

- $5.456 - 3.456 = \dots$ **2**

a 8.912

b 200

c 20

d 2

- 3 Tenths - 33 Thousandths = **267** Thousandths

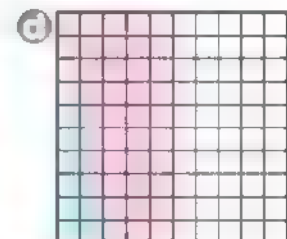
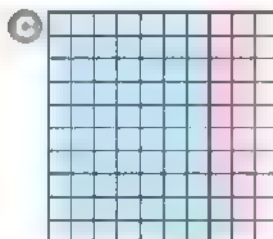
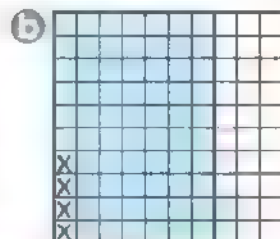
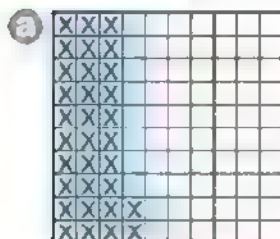
a 0.267

b 267

c 2.67

d 26.7

Match each model to its expression:



1 $0.72 - 0.04$

2 $0.42 - 0.32$

3 $0.09 + 0.41$

4 $0.72 + 0.18$

Answer the following:

Emad had **56.5** pounds. He bought a pen for **12.25** pounds and a notebook for **15.5** pounds. How much money is left with Emad?

$$12.25 + 15.5 = 27.75 \text{ pounds}$$

$$56.5 - 27.75 = 28.75 \text{ pounds}$$

Unit 2 Number Relationships

Concept 2.1 Expressions, Equations, and the Real World

Lesson 1 Expressions, Equations, and Variables

1 Choose the correct answer:

1 $45 + y - 2.5$ is a/an **mathematical expression**

(variable ☐ mathematical expression ☒ equation ☐ other)

2 $25 + 5.7 \times 2$ is a/an **mathematical expression**

(variable ☐ mathematical expression ☒ equation ☐ other)

3 "Ahmed sleeps 7 hours a day." is a/an **other**.

(variable ☐ mathematical expression ☐ equation ☒ other)

4 $12 + 3.7 = y$ is a/an **equation**.

(variable ☐ mathematical expression ☒ equation ☐ other)

5 $8 + x - 7 = 6.7$ is a/an **equation**.

(variable ☐ mathematical expression ☒ equation ☐ other)

6 "The largest 3-digit number is 999." is a/an **other**.

(variable ☐ mathematical expression ☐ equation ☒ other)

7 "Walaa has 1.25 kg of pistachios." is a/an **other**.

(variable ☐ mathematical expression ☐ equation ☒ other)

8 The equation that represents "12.5 plus a number equals 15." is

$$12.5 + x = 15$$

($15 - x = 12.5$ ☐ $15 + x = 12.5$ ☐ $12.5 + x = 15$ ☒ $12.5 + 15 = x$)

9 The equation that represents "a minus 12 equals 7.5" is **$a - 12 = 7.5$**

($a - 12 = 7.5$ ☒ $12 - a = 7.5$ ☐ $7.5 - a = 12$ ☐ $12 - 7.5 = a$)

- 10 In the equation $45 - m = 25$, if 45 represents the number of students in one of the classes and 25 represents the number of girls in this class, then the variable m represents the **number of boys**

(number of girls **or** number of boys **or** number of students
or number of teachers)

- 11 In the equation $75 - 56.3 = y$, if 75 represents the money that Yassin owns, and 56.3 represents the money he spent, then the variable y represents **the money with him now**

(the money with him now **or** the money he spent **or** the money he got,
or the money that was with him first)

- 12 Adel is comparing the height of two plants in the garden using this equation: $92.5 - n = 45.5$, where 92.5 is the height of one of them, then the variable n in this equation represents **the height of one of the plants**

(the difference between the height of the two plants,
or the sum of the height of the two plants,
or the height of other plant **or** Adel's height)

- 13 The equation $36.5 + 2.15 = y$ is similar to the equation **$2.15 + 36.5 = y$**

($36.5 = y + 2.15$ **or** $y + 36.5 = 2.15$ **or** $36.5 - y = 2.15$ **or** $2.15 + 36.5 = y$)

- 14 If the dimensions of a rectangle are 5.5 cm and 7.2 cm, then the variable " p " in the equation $7.2 + 5.5 + 7.2 + 5.5 = p$ represents the **perimeter**.

(length **or** width **or** perimeter **or** area)

- 15 Huda bought a pen for 12.5 pounds and a ruler for 3.25 pounds. The equation that represents what Huda paid is **$12.5 + 3.25 = b$**

($3.25 + b = 12.5$ **or** $12.5 + b = 3.25$ **or** $12.5 - b = 3.25$ **or** $12.5 + 3.25 = b$)

Number Sense and Operations

2 Read the following story problems. Make an equation for each problem:

- 1 Hazem has 125 pounds. He bought books for 65.5 pounds.

What is the remaining money with Hazem?

$$x = 125 - 65.5$$

- 2 A classroom in a school has 21 girls and 15 boys.

How many students are there in this class?

$$15 + 21 = x$$

- 3 A cattle farm has 90 cows and 75 buffaloes. What is the difference between the number of cows and buffaloes?

$$x = 90 - 75$$

- 4 Mazen is 145 cm tall and his brother Fouad is 20 cm taller than him. How tall is Fouad?

$$x = 145 + 20$$

- 5 Two numbers whose sum is 255 and one of them is 107.5. What is the other number?

$$107.5 + x = 255$$

3 Match:

1 The difference between 5.5 and 3.7

2 The sum of 5.5 and 3.7

3 3.7 plus a number equals 5.5

4 5.5 minus a number equals 3.7

5 A number minus 3.5 equals 3.7

a $3.7 + 5.5 = y$

b $3.7 + a = 5.5$

c $m - 3.5 = 3.7$

d $5.5 - 3.7 = x$

e $5.5 - n = 3.7$

Assessment

1

on Lesson 1

Unit 1

First: Choose the correct answer:

1 $5 + x + 3$ is **a mathematical expression**.

☐ a a variable

☒ b a mathematical expression

☐ c an equation

☐ d other

2 $7 + 5 = m + 3$ is **an equation**.

☐ a a variable

☐ b a mathematical expression

☒ c an equation

☐ d other

3 In the equation $45 + x = 86$. If **86** represents the number of students in one of the classes and **45** represents the number of boys in this class, then, **x** represents **the number of girls**

☒ a the number of girls

☐ b the number of boys

☐ c the number of students

☐ d the number of teachers

4 Hussam compared the lengths of two of his colleagues and wrote this equation: $1.52 - 1.25 = y$, the letter **y** represents

☐ a the height of one of his colleagues

☐ b the sum of the height of his colleagues

☒ c the difference between the heights of his colleagues

☐ d the height of Hussam

5 The equation that represents the difference between **4.25** and **3.79** is **$m = 4.25 - 3.79$**

☐ a $m = 3.79 + 4.25$ ☐ b $m = 3.79 - 4.25$ ☐ c $m = 4.25 - 3.79$ ☒ d $m = 4.25 - 3.79$

Second: Match:

1 The difference between **18.5** and **12.5**

☐ a $a = 18.5 + 12.5$

2 The sum of **18.5** and **12.5**

☐ b $a = 18.5 - 12.5$

3 **12.5 plus** a number equals **18.5**

☐ c $18.5 - a = 12.5$

4 **18.5 minus** a number equals **12.5**

☐ d $a + 12.5 = 18.5$

5 A number **plus** **12.5** equals **18.5**

☐ e $12.5 + a = 18.5$

Lessons 2&3

Variables in Equations Telling Stories with Numbers

1 Use mental math to estimate the equations, and then solve them:

1 $2.45 + n = 5.24$

$n = 5.24 - 2.45$

$n = 2.79$

2 $y - 12.40 = 3.01$

$y = 12.4 + 3.01$

$y = 15.41$

3 $8.5 - m = 4.25$

$m = 8.5 - 4.25$

$m = 4.25$

4 $8.12 + x = 20$

$x = 20 - 8.12$

$x = 11.88$

5 $2.30 + 3.10 = 1.50 + v$

$v = [2.3 - 3.1] - 1.5$

$v = 3.9$

6 $2.377 + 3.1 = 1.52 + a$

$a = [2.377 + 3.1] - 1.52$

$a = 3.957$

7 $63 - 15 = p + 10$

$p = [63 - 15] - 10$

$p = 38$

8 $7.5 - 1.5 = d + 5$

$d = [7.5 - 1.5] - 5$

$d = 1$

2 Complete the following:

1 If $2.5 + 3.5 + y = 16$, then $y = 10$

2 If $x + 15.2 = 14.5 + 15.5$, then $x = 14.8$

3 If $95 - 65.27 = z - 29.73$, then $z = 59.46$

4 If $10.5 - 2.5 = a - 8$, then $a = 16$

5 If $m = 1.28$, then $m + 37.72 = 39$

6 If $b = 3.25$, then $b + 56.75 = 60$

7 If $e = 17.102$, then $e - 11.102 = 6$

8 If $r = 32.5$, then $48 - r = 15.5$

3 Choose the correct answer:

1 If $63.5 + m = 108.5$, then $m =$ **45** . (45 or 172 or 45.5 or 171.5)

2 If $75.5 - x = 15.5$, then $x =$ **60** . (91 or 60 or 90.1 or 60.5)

3 If $a - 12.3 = 14.7$, then $a =$ **27** . (2.4 or 270 or 27 or 24)

4 If $3.45 + y = 7.13 + 2.15$, then $y =$ **5.83** . (9.28 or 3.68 or 12.73 or 5.83)

5 If $w - 12.5 = 8.5 - 3.5$, then $w =$ **17.5** . (17.5 or 4 or 7.5 or 9)

4 Write a story problem representing each equation, and then solve it:

1 $9.25 + 2.75 = m$

Morad went to the supermarket, he bought tomatoes for 9.25 and
pickles for 2.75.

How much money did Morad pay?

"There are many answers"

2 $x - 125 = 45.8$

Farida had a pocket money, she spent 125 L.E at the toy shop, and
the remaining money with her was 45.8 , How much money did she
have?

"There are many answers"

First: Choose the correct answer:

- 1 If $78.45 + y = 90$, then $y = \dots\dots\dots$ **11.55** .
 (a) 78.45 (b) 90 (c) 168.45 (d) 11.55
- 2 If $12 - m = 5.125$, then $m = \dots\dots\dots$ **6.875** .
 (a) 12 (b) 5.125 (c) 6.875 (d) 17.125
- 3 If $2.5 + 3.4 + x = 7$, then $x = \dots\dots\dots$ **$7 - (2.5 + 3.4)$**
 (a) $2.5 + 3.4 + 7$ (b) $7 - 2.5 + 3.4$ (c) $7 - (2.5 + 3.4)$ (d) $(7 + 2.5) - 3.4$
- 4 If $5.4 + 2.6 = c - 1.9$, then $c = \dots\dots\dots$ **9.9** .
 (a) 6.1 (b) 8 (c) 9.9 (d) 7.3

Second: Complete the following:

- 1 If $8.5 + y = 15$, then $y = \dots\dots\dots$ **6.5** .
- 2 If $2.125 - z = 6.782 - 6.75$, then $z = \dots\dots\dots$ **2.093** .
- 3 If $m = 3.25$, then $m + 3.275 = \dots\dots\dots$ **6.525** .

Third:

Find the value of the variable (a) in each of the following:

1 $35.2 + a = 63.8$

$a = \dots\dots\dots$ **$63.8 - 35.2$**

$a = \dots\dots\dots$ **28.6**

2 $a - 24.8 = 35.2$

$y = \dots\dots\dots$ **$24.8 + 35.2$**

$y = \dots\dots\dots$ **60**

3 $a + 6.15 = 10$

$a = \dots\dots\dots$ **$10 - 6.15$**

$a = \dots\dots\dots$ **3.85**

4 $45.16 - a = 13.48$

$a = \dots\dots\dots$ **$45.16 - 13.48$**

$a = \dots\dots\dots$ **31.68**

Assessment on Concept 1



Choose the correct answer:

- 1 $2.15 + x = 9.25$ is **an equation**
☐ a variable ☐ a mathematical expression ☒ an equation ☐ other
- 2 If $28.45 - y = 15.05$, then $y =$ **13.40**
☒ 13.40 ☐ 43.50 ☐ 28.45 ☐ 15.05
- 3 In the equation $38.50 + x = 80.25$, if 80.25 represents the amount that Hossam owns and 38.50 represents the amount remaining with him, then x represents **the amount he spent**
☐ the amount he owns ☐ the amount he has left
☒ the amount he spent ☐ other
- 4 The equation that represents the sum of 6.35 and 3.14 is **$m = 6.35 + 3.14$**
☒ $m = 6.35 + 3.14$ ☐ $m - 3.14 = 6.35$ ☐ $m - 6.35 = 3.14$ ☐ $m = 6.35 - 3.14$

Complete the following:

- 1 If $8.5 - y = 1.5 + 6.5$, then $y =$ **0.5**.
- 2 If $5.52 + 2.01 + x = 9.21$, then $x =$ **1.68**.
- 3 If $m = 3.01$, then $m - 0.5 =$ **2.51**.
- 4 $f + 0.28 = 9.07$, then $f =$ **$9.07 - 0.28 = 8.79$**

Put (✓) or (✗):

- 1) " $x + 3.2 = 1.2 + 7.8$ " is called a variable. (✗)
- 2 The equation $7.2 + 1.05 = x$ is similar to the equation $1.05 + 7.2 = y$. (✓)
- 3 If $5.63 - m = 2.15$, then $m = 5.63 + 2.15$. (✗)
- 4 The equation that represents the difference between 18.5 and 12.5 is $z - 18.5 = 12.5$. (✗)

Concept 2.2 Factors and Multiples

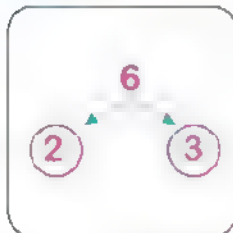
Lesson

4

Prime Factorization

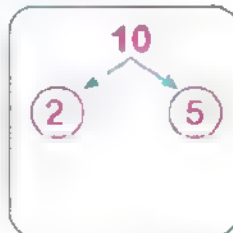
1 Factorize each number into its prime factors using the factor tree:

1 6



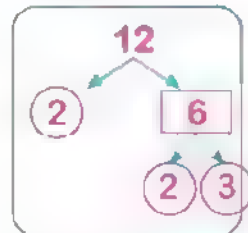
$$6 = 2 \times 3$$

2 10



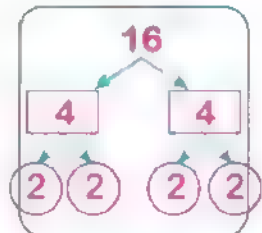
$$10 = 2 \times 5$$

3 12



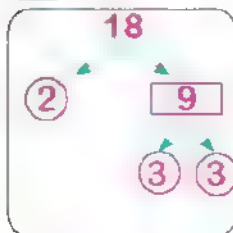
$$12 = 2 \times 2 \times 3$$

4 16



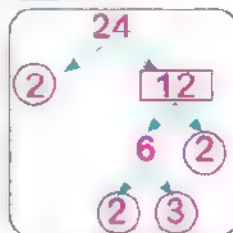
$$16 = 2 \times 2 \times 2 \times 2$$

5 18



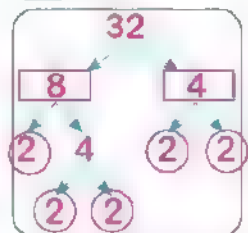
$$18 = 2 \times 3 \times 3$$

6 24



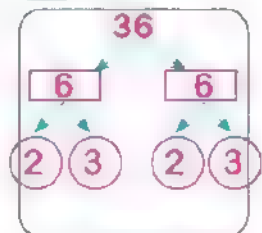
$$24 = 2 \times 2 \times 2 \times 3$$

7 32



$$32 = 2 \times 2 \times 2 \times 2 \times 2$$

8 36



$$36 = 2 \times 2 \times 3 \times 3$$

2 Complete the following sentences:

- The number of factors of a prime number is **2** factors.
- All prime numbers are odd numbers, except **2** which is an even number.
- 2** is the smallest prime number.
- 3** is the smallest odd prime number.
- Prime number** is a number greater than one and has only two factors.
- The smallest 2-digit prime number is**11**
- The prime numbers less than 10 are **2, 3, 5, 7**.
- The number of factors of 25 is**3**..... factors.
- 1, 2, 4, 8, 16 only are the factors of**16**

10 The prime factors of 21 are **3, 7**.

11 2 is a factor of all numbers whose Ones digit is **0**, **2**, **4**, **6** or **8**.

12 The number whose prime factors are 2, 3, 3 is **18**.

3 Choose the correct answer:

1 **1** is a factor of all numbers. (0 or **1** or 2 or 3)

2 **59** is a prime number. (51 or 52 or 57 or **59**)

3 3 and 5 together are prime factors of **30**.
(**30** or 25 or 18 or 53)

4 The prime number _____ (has no factors or has one factor only
or **has two factors only** or has three factors only)

5 2, 3, 5, 7 are **prime** numbers.
(even or odd or **prime** or composite)

6 The prime factors of 12 are **2 x 2 x 3** (2 x 6 or 3 x 4 or **2 x 2 x 3** or 1 x 12)

7 If the prime factors of a number are 2 X 2 X 2, then the number is **8**.
(**8** or 4 or 6 or 222)

4 Put (✓) or (X):

1 **17** is a prime number. (✓)

2 **22** is a composite number. (✓)

3 The prime number whose sum of factors is 8 is 7. (✓)

4 The smallest prime number is **1**. (X)

5 All prime numbers are **odd** numbers. (X)

6 **4** is a prime number because it has more than two factors. (X)

7 The smallest even prime number is **2**. (✓)

8 The smallest odd prime number is **3**. (✓)

9 2, 2 and 5 are the prime factors of **10**. (X)

First: Choose the correct answer:

- The number of factors of 16 is **5**.
 a 3 b 4 **c 5** d 6
- If the all factors of a number are 1, 2, 3, 4, 6, 12, then its prime factors are **$2 \times 2 \times 3$** .
a $2 \times 2 \times 3$ b 3×4 c 2×6 d 1×12
- The **smallest** prime number formed from two digits is **11**.
 a 2 b 10 **c 11** d 12
- 2 and 7 together are prime factors of **14**.
 a 72 **b 14** c 27 d 9

Second: Match:

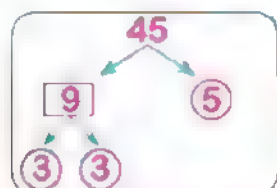
- | | |
|------------------------------|--------------|
| 1 Prime factors of 20 | a 2, 3, 5, 7 |
| 2 Prime numbers less than 10 | b 2, 3, 3 |
| 3 Prime factors of 18 | c 2, 2, 5 |

Third: Complete the following:

- All prime numbers are odd numbers, except **2** is an even number.
- If $a \times 9 = 36$, then $a =$ **4**.
- The prime factors of 25 are: $25 =$ **5×5** .
- A number whose prime factors are 2, 2 and 5 is **20**.

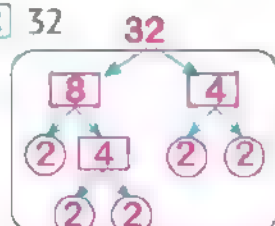
Fourth: Factorize each number into its prime factors using the factor tree:

1 45



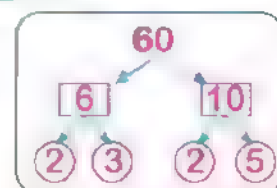
$$45 = 3 \times 3 \times 5$$

2 32



$$32 = 2 \times 2 \times 2 \times 2 \times 2 \times 2$$

3 60



$$60 = 2 \times 2 \times 3 \times 5$$

Lesson

5

Greatest Common Factors (GCF)

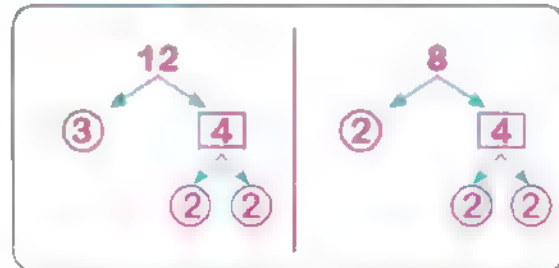
1 Find the greatest common factor (GCF) of each of the following:

1 12, 8

$$12 = 2 \times 2 \times 3$$

$$8 = 2 \times 2 \times 2$$

$$\text{GCF} = 2 \times 2 = 4$$

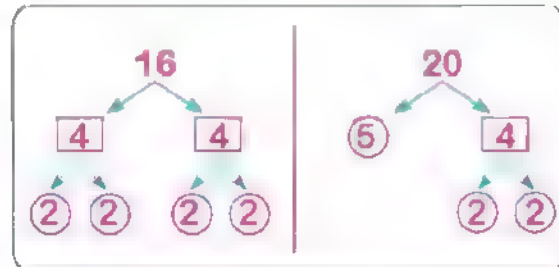


2 16, 20

$$16 = 2 \times 2 \times 2 \times 2$$

$$20 = 2 \times 2 \times 5$$

$$\text{GCF} = 2 \times 2 = 4$$

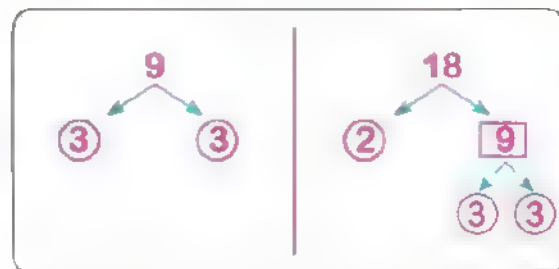


3 9, 18

$$9 = 3 \times 3$$

$$18 = 3 \times 3 \times 2$$

$$\text{GCF} = 3 \times 3 = 9$$

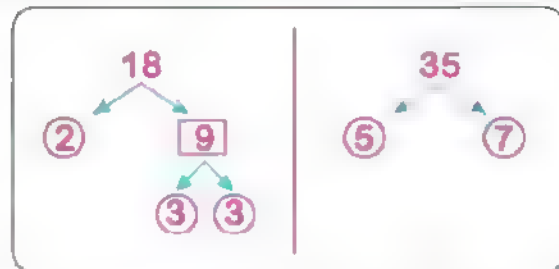


4 18, 35

$$18 = 3 \times 3 \times 2$$

$$35 = 5 \times 7$$

$$\text{GCF} = 1$$

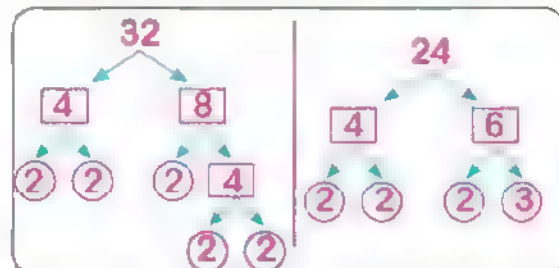


5 32, 24

$$32 = 2 \times 2 \times 2 \times 2 \times 2$$

$$24 = 2 \times 2 \times 2 \times 3$$

$$\text{GCF} = 2 \times 2 \times 2 = 8$$



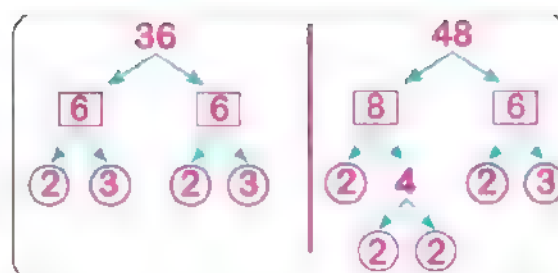
Number Sense and Operations

6 36, 48

$$36 = 2 \times 2 \times 3 \times 3$$

$$48 = 2 \times 2 \times 3 \times 2 \times 2$$

$$\text{GCF} = 2 \times 2 \times 3 = 12$$

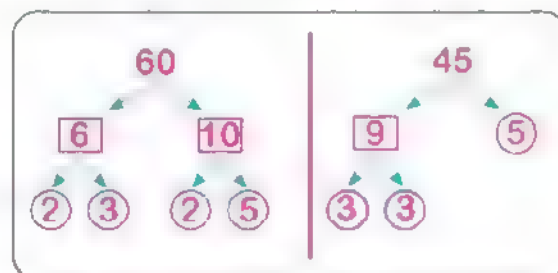


7 60, 45

$$60 = 2 \times 2 \times 3 \times 5$$

$$45 = 3 \times 5 \times 3$$

$$\text{GCF} = 3 \times 5 = 15$$



8 42, 28

$$42 = 2 \times 3 \times 7$$

$$28 = 2 \times 7 \times 2$$

$$\text{GCF} = 2 \times 7 = 14$$

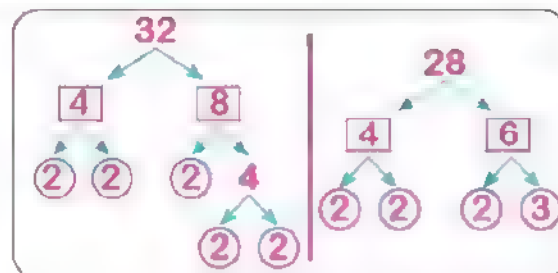


9 4×8 , $6 \times 2 \times 2$

$$32 = 2 \times 2 \times 2 \times 2 \times 2$$

$$24 = 2 \times 2 \times 2 \times 3$$

$$\text{GCF} = 2 \times 2 \times 2 = 8$$

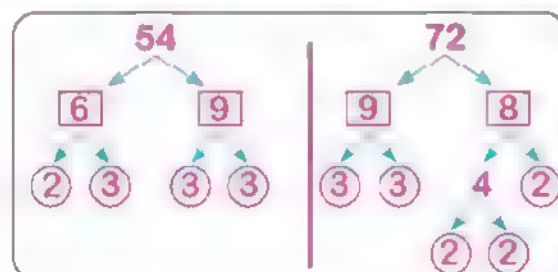


10 6×9 , 8×9

$$54 = 2 \times 3 \times 3 \times 3$$

$$72 = 2 \times 3 \times 3 \times 2 \times 2$$

$$\text{GCF} = 2 \times 3 \times 3 = 18$$



2 Complete the following sentences:

- 1 If $y = 2 \times 2 \times 2 \times 2$, then $y = \dots\dots 16$.
- 2 If $d = 3 \times 3 \times 5$, then $d = \dots\dots 45$.
- 3 The prime factors of 17 are $\dots\dots 17$.
- 4 The prime factors of 26 are 2×13 .
- 5 The greatest common factor of 3 and 5 is 1.
- 6 The greatest common factor of 7 and 14 is 7.
- 7 The prime number whose factors sum is 12, is $\dots\dots 11$.
- 8 The prime number between 90 and 100 is 97.

3 Choose the correct answer:

- 1 The prime factors of 14 are 2×7 .
(2×7 or 1×14 or $1 \times 2 \times 7$ or $2 \times 3 \times 4$)
- 2 The prime factors of 16 are $2 \times 2 \times 2 \times 2$.
(2×8 or $2 \times 2 \times 4$ or 4×4 or $2 \times 2 \times 2 \times 2$)
- 3 The **greatest common factor** of any two prime numbers is **one**.
(the largest number or the smallest number or one or zero)
- 4 The **greatest common factor** of two numbers, one of which is a factor of the other, is **the smaller number**. (the largest number or the smaller number or the product of the two numbers or the sum of the two numbers)
- 5 The **greatest common factor** of 28 and 14 is **14**. (7 or 2 or 28 or 14)
- 6 The **greatest common factor** of 11 and 5 is **1**. (11 or 5 or 1 or 16)
- 7 If the common **prime** factors of two numbers are 2, 2, 3, then the **GCF** for these two numbers is **12**.
(223 or 7 or 12 or 24)

First Choose the correct answer:

- The prime factor(s) of 14 are/is ... **2, 7** .
 (a) 2 (b) **2, 7** (c) 1, 2, 7, 14 (d) 3
- The **greatest common factor** of any two prime numbers is **1** .
 (a) the largest number (b) the smallest number
 (c) **1** (d) there is no common factors
- The greatest common factor of 21 and 7 is **7** .
 (a) **/** (b) 21 (c) 28 (d) 14
- The common **prime** factors of two numbers are: 2, 3, 5, then the GCF of these two numbers is **30** .
 (a) 6 (b) **30** (c) 10 (d) 2

Second Complete the following sentences:

- If $n = 2 \times 2 \times 7$ then, $n =$ **28** .
- The factors of 23 are .. **1, 23** .
- The prime factors of 19 are **19** .
- The **greatest common factor** of 8 and 5 is **1** .
- A prime number whose factors sum is 6 is **5** .

Third Find the **greatest common factor** for each of the following:

1 30, 20

$$30 = \dots \mathbf{2 \times 3 \times 5} \dots$$

$$20 = \dots \mathbf{2 \times 5 \times 2} \dots$$

$$\text{GCF} = \mathbf{2 \times 5} \dots = \dots \mathbf{10} \dots$$

2 12, 48

$$12 = \mathbf{2 \times 2 \times 3} \dots$$

$$48 = \mathbf{2 \times 2 \times 3 \times 2 \times 2} \dots$$

$$\text{GCF} = \mathbf{2 \times 2 \times 3} \dots = \dots \mathbf{12} \dots$$

Fourth

Find the **greatest common factor** of (6×6) and (5×8) .

$$\text{GCF} = 4$$

Lessons 6&7 Identifying Multiples Least Common Multiple (LCM)

1 Circle the multiples of the following numbers:

1 3 → 2, (6), (12), 14, (21), 25, (30), 37, (42)

2 6 → (0), 2, (18), 21, (30), (42), 52, 56, (60)

3 10 → 5, 15, (10), 25, 35, (40), (50), 95, (100)

4 5 → 8, 12, (25), (45), 59, (85), (150), 551, (15)

5 7 → 2, (14), 27, (35), 47, (49), (63), (77), 81

2 Answer the following:

1 a List the first 10 multiples of 3: 0, 3, 6, 9, 12, 15, 18, 21, 24, 27

b List the first 5 multiples of 6: 0, 6, 12, 18, 24

c The common multiples of 3 and 6 of those you listed: 0, 6, 12, 18, 24

d The least common multiple of the two numbers is 6

2 a List the first 7 multiples of 6: 0, 6, 12, 18, 24, 30, 36

b List the first 7 multiples of 4: 0, 4, 8, 12, 16, 20, 24

c The common multiples of 6 and 4 of those you listed: 0, 12, 24

d The least common multiple of the two numbers is 12

3 a List the first 5 multiples of 8: 0, 8, 16, 24, 32

b List the first 10 multiples of 4: 0, 4, 8, 12, 16, 20, 24, 28, 32, 36

c The common multiples of 8 and 4 of those you listed: 0, 8, 16, 24, 32

d The least common multiple of the two numbers is 8

4 a List the first 5 multiples of 6: 0, 6, 12, 18, 24

b List the first 8 multiples of 8: 0, 8, 16, 24, 32, 40, 48, 56

c The common multiples of 6 and 8 of those you listed: 0, 24

d The least common multiples of the numbers is 24

Number Sense and Operations

3 Find the **GCF** and **LCM** for each of the following:

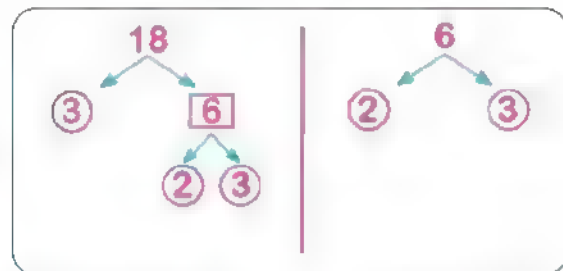
1 8, 6

$$8 = 2 \times 2 \times 2$$

$$6 = 2 \times 3$$

$$\text{GCF} = 2 = 2$$

$$\text{LCM} = 2 \times 2 \times 2 \times 3 = 24$$



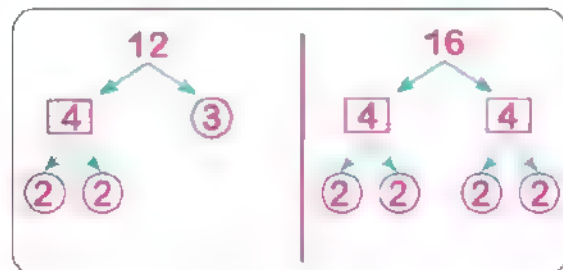
2 12, 16

$$12 = 2 \times 2 \times 3$$

$$16 = 2 \times 2 \times 2 \times 2$$

$$\text{GCF} = 2 \times 2 = 4$$

$$\text{LCM} = 2 \times 2 \times 3 \times 2 \times 2 = 48$$



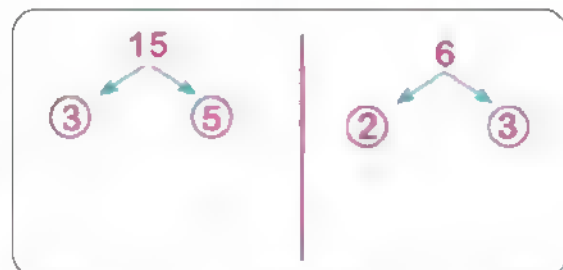
3 15, 6

$$15 = 3 \times 5$$

$$6 = 3 \times 2$$

$$\text{GCF} = 3 = 3$$

$$\text{LCM} = 3 \times 5 \times 2 = 30$$



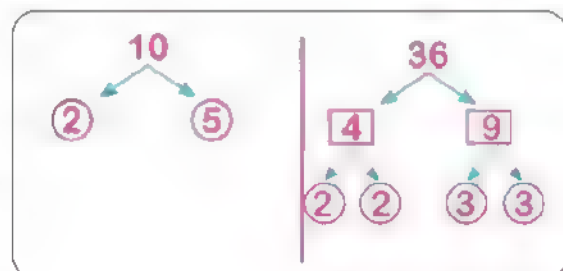
4 10, 8

$$10 = 2 \times 5$$

$$8 = 2 \times 2 \times 2$$

$$\text{GCF} = 2 = 2$$

$$\text{LCM} = 2 \times 5 \times 2 \times 2 = 40$$



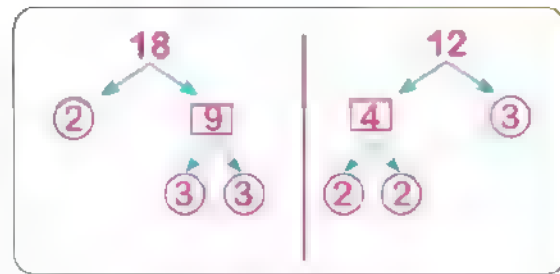
5] 18, 12

$$18 = 3 \times 3 \times 2$$

$$12 = 3 \times 2 \times 2$$

$$\text{GCF} = 3 \times 2 = 6$$

$$\text{LCM} = 3 \times 3 \times 2 \times 2 = 36$$



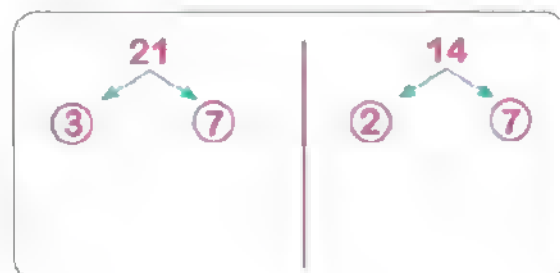
6] 21, 14

$$21 = 3 \times 7$$

$$14 = 7 \times 2$$

$$\text{GCF} = 7 = 7$$

$$\text{LCM} = 3 \times 7 \times 2 = 42$$



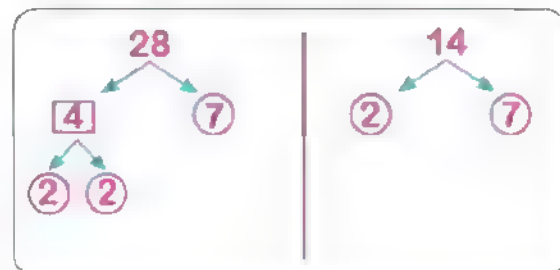
7] 28, 14

$$28 = 2 \times 2 \times 7$$

$$14 = 2 \times 7$$

$$\text{GCF} = 2 \times 7 = 14$$

$$\text{LCM} = 2 \times 2 \times 7 = 28$$



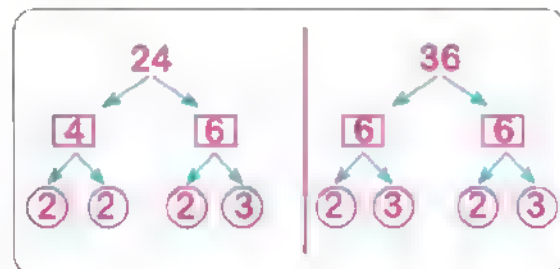
8] 24, 36

$$24 = 2 \times 2 \times 2 \times 3$$

$$36 = 2 \times 2 \times 3 \times 3$$

$$\text{GCF} = 2 \times 2 \times 3 = 12$$

$$\text{LCM} = 2 \times 2 \times 2 \times 3 \times 3 = 72$$



4 Choose the correct answer:

1 **27** is a multiple of 9 (19 or 6 or 3 or **27**)

2 **14** is a multiple of **7** (4 or **7** or 21 or 28)

3 The common multiple of all numbers is **0** (1 or 2 or 3 or **0**)

4 The LCM of 9 and 6 is **18** (54 or 36 or **18** or 9)

5 The LCM of 8 and 10 is **40** (10 or 80 or 8 or **40**)

6 _____ is a number that has more than one set of factor pairs

(Prime number or Factor or Multiple or **Composite number**)

7 factor is the number that is **multiplied** by another number to get the product. (Prime number or **Factor** or Multiple or Composite number)

8 Counting by jumping is a way to find the _____ of a number.

(sum or factors or **multiples** or other)

9 The least common multiple of any **two** prime numbers is _____ .

(the largest number or the smaller number

or **the product of the two numbers** or the sum of the two numbers)

10 The least common multiple of **two** numbers, one of which is a factor of the other is _____ . (the largest number or the smaller number

or the product of the two numbers or the sum of the two numbers)

First Choose the correct answer:

1. **16** ... is a multiple of 8.
 (a) 2 (b) 4 (c) **16** (d) 6
2. 24 is a multiple of **8**
 (a) 16 (b) 14 (c) **8** (d) 9
3. The **common multiple** of all numbers is **0** .
 (a) **0** (b) 1 (c) 2 (d) 3
4. The LCM of 8 and 4 is **8** .
 (a) 4 (b) **8** (c) 16 (d) 12
5. The LCM of 3 and 5 is **15** .
 (a) 8 (b) **15** (c) 30 (d) 45

Second Use the following words to complete:
 (prime, factor, One, composite number, multiples)

1. A **composite number** is a number with more than one set of factor pairs.
2. A **factor** is a number that is multiplied by another number to get a product.
3. Skip counting is a way to find the **multiples** of a number.
4. **One** is a factor of all numbers.
5. The **prime** number has only 2 factors: one and the number itself.

Third Find the **GCF** and **LCM** for each of the following:

1. **8, 16**

$$8 = \dots \mathbf{2 \times 2 \times 2} \dots$$

$$16 = \dots \mathbf{2 \times 2 \times 2 \times 2} \dots$$

$$\text{GCF} = \mathbf{2 \times 2 \times 2} = \mathbf{8}$$

$$\text{LCM} = \mathbf{2 \times 2 \times 2 \times 2} = \mathbf{16}$$

2. **15, 20**

$$15 = \mathbf{3 \times 5}$$

$$20 = \dots \mathbf{5 \times 2 \times 2} \dots$$

$$\text{GCF} = \mathbf{5} = \mathbf{5}$$

$$\text{LCM} = \mathbf{3 \times 5 \times 2 \times 2} = \mathbf{60}$$

Fourth Find the **LCM** for the numbers 8 and 12.

1. The multiples of 8 are: **0** , **8** , **16** , **24** , **32** , **40** , **48** .
2. The multiples of 12 are: **0** , **12** , **24** , **36** , **48** .
3. The **common multiples** are: **0, 24, 48** .
4. **LCM** = **24** .

Lesson 8 Factors or Multiples?

1 Find the **GCF** and **LCM** for each of the following:

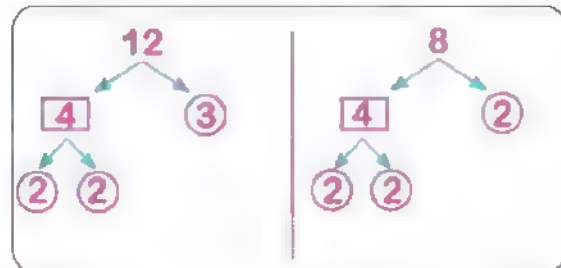
1 12, 8

$$12 = 2 \times 2 \times 3$$

$$8 = 2 \times 2 \times 2$$

$$\text{GCF} = 2 \times 2 = 4$$

$$\text{LCM} = 2 \times 2 \times 3 \times 2 = 24$$



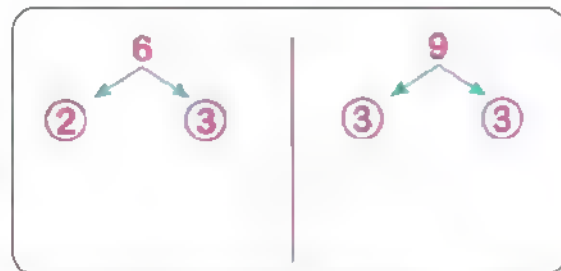
2 6, 9

$$6 = 2 \times 3$$

$$9 = 3 \times 3$$

$$\text{GCF} = 3 = 3$$

$$\text{LCM} = 2 \times 3 \times 3 = 18$$



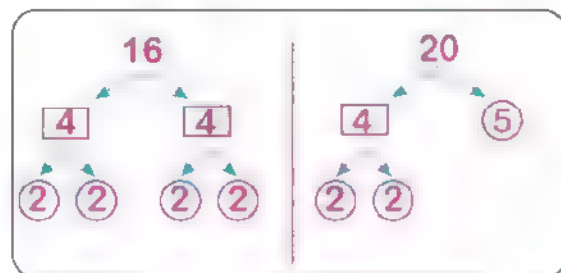
3 16, 20

$$16 = 2 \times 2 \times 2 \times 2$$

$$20 = 2 \times 2 \times 5$$

$$\text{GCF} = 2 \times 2 = 4$$

$$\text{LCM} = 2 \times 2 \times 2 \times 2 \times 5 = 80$$



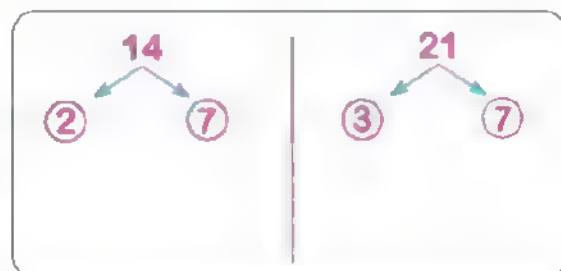
4 14, 21

$$14 = 2 \times 7$$

$$21 = 7 \times 3$$

$$\text{GCF} = 7 = 7$$

$$\text{LCM} = 2 \times 7 \times 3 = 42$$



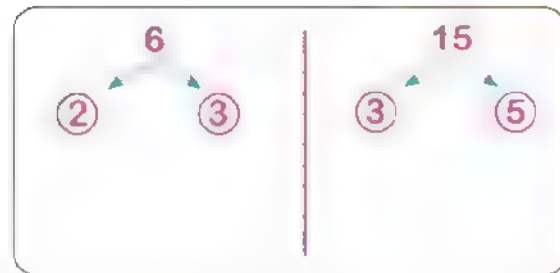
5 6, 15

$$6 = 3 \times 2$$

$$15 = 3 \times 5$$

$$\text{GCF} = 3 = 3$$

$$\text{LCM} = 3 \times 2 \times 5 = 30$$



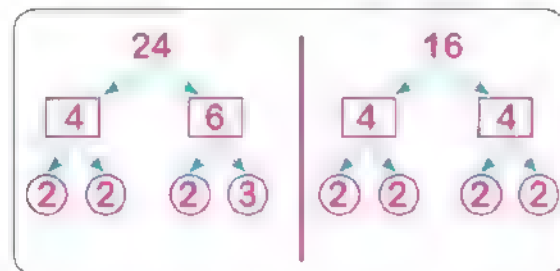
6 24, 16

$$24 = 2 \times 2 \times 2 \times 3$$

$$16 = 2 \times 2 \times 2 \times 2$$

$$\text{GCF} = 2 \times 2 \times 2 = 8$$

$$\text{LCM} = 2 \times 2 \times 2 \times 3 \times 2 = 48$$



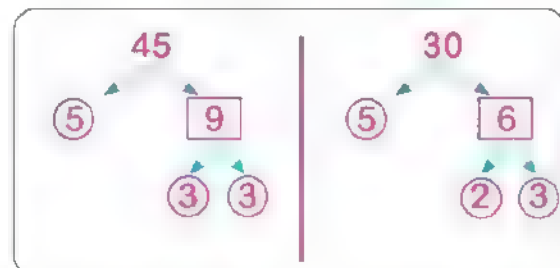
7 45, 30

$$45 = 3 \times 3 \times 5$$

$$30 = 3 \times 5 \times 2$$

$$\text{GCF} = 3 \times 5 = 15$$

$$\text{LCM} = 3 \times 3 \times 5 \times 2 = 90$$



8 25, 15

$$25 = 5 \times 5$$

$$15 = 5 \times 3$$

$$\text{GCF} = 5 = 5$$

$$\text{LCM} = 5 \times 5 \times 3 = 75$$



2 Answer the following:

- 1 Mohamed trains to lift weights every 4 days and trains for tennis every 6 days. After how many days will Mohamed play tennis and lift weights on the same day?

After 12 days Mohamed will	$4 = 2 \times 2$
play tennis and lift weight on	$6 = 2 \times 3$
the same day.....	
	$LCM = 2 \times 2 \times 3 = 12$

- 2 Omnia has two strips of fabrics. One is 45 centimeters wide, and the other is 75 cm wide. She wants to cut both pieces into strips of equal width that are as wide as possible. How wide should she cut the strips?

The wide of the strips = 15 cm	$45 = 3 \times 3 \times 5$
	$75 = 3 \times 5 \times 5$
	$LCM = 3 \times 5 = 15$

- 3 Ola sells baskets of figs each holding 9. She also sells bags of pomegranates, each holding 7. If she sells the same number of each, what is the smallest quantity of each type of fruit that she will sell?

The smallest quantity	$9 = 3 \times 3$
= 63 fruits	$7 = 7$
	$LCM = 3 \times 3 \times 7 = 63$

- 4 Two alarms, one of which rings regularly every two hours, and the other rings regularly every 3 hours. If the two alarms rang together at 12 o'clock, at what hour did they ring together for the first time after that?

The two alarms rang together	$2 = 2$
at 6 o'clock	$3 = 3$
	$LCM = 2 \times 3 = 6$

- 5 A merchant has 18 kg of oranges and 27 kg of apples. If merchant wants to divide the oranges and apples into bags of the same mass. What is the largest number of bags for each type of fruit to have bags with the same masses? How many kilograms of oranges will each bag contain? How many kilograms of apples will each bag contain?

The longest number of bags = 9 bags	$18 = 2 \times 3 \times 3$
the mass of oranges in each bag = $18 \div 9 = 2$ Kg	$27 = 3 \times 3 \times 3$
the mass of apples in each bag = $27 \div 9 = 3$ Kg	<hr/>
	GCF = $3 \times 3 = 9$

- 6 A hospital has 12 doctors, and 28 nurses. Find the largest number of equal groups that can be formed of both doctors and nurses. How many doctors are in each group? What is the number of nurses in each group?

The longest number of groups = 4 groups	$12 = 2 \times 2 \times 3$
the mass of doctors in each group = $12 \div 4 = 3$ doctors	$28 = 2 \times 2 \times 7$
the mass of nurses in each group = $28 \div 4 = 7$ nurses	<hr/>
	GCF = $2 \times 2 = 4$

- 7 Mahmoud wanted to divide 24 pens and 36 notebooks into groups, so that each group contained the same number of tools. What is the largest number of groups that can be formed for each type of tool, so that each group has the same number?

Number of groups = 12 groups	$24 = 2 \times 2 \times 2 \times 3$
Number of pens in each group = $24 \div 12 = 2$ pens	$36 = 2 \times 2 \times 2 \times 3$
Number of notebooks in each group = $36 \div 12 = 3$ notebooks	<hr/>
	GCF = $2 \times 2 \times 3 = 12$

- 8 Adel goes to the club every 3 days to train for football, and his friend Ahmed goes to the same club every 4 days to train for volleyball. After how many days will the two friends meet?

The number of days = 12 days	$3 = 3$
	$4 = 2 \times 2$
	<hr/>
	LCM = $3 \times 2 \times 2 = 12$

First Choose the correct answer:

- 1 The GCF of 12 and 18 is **6**
 (a) 2 (b) 3 (c) **6** (d) 9
- 2 The LCM of 6 and 8 is .. **24** ..
 (a) 2 (b) **24** (c) 48 (d) 14
- 3 Which of the following is a multiple of 12?
 (a) 6 (b) 3 (c) **12** (d) 4
- 4 Which of the following is a common multiple of 9 and 6?
 (a) 3 (b) 12 (c) 27 (d) **18**

Second Complete the following sentences:

- 1 The multiples of 6 between 20 and 30 are **24**
- 2 The prime factors of 27 are **3 X 3 X 3** .
- 3 The greatest common factor of 18 and 12 is **6**
- 4 The LCM of 12 and 8 is **24** ..

Third Answer the following:

- 1 Menna gives her friends pencils and erasers. The store sells pencils in boxes of 8 and erasers in boxes of 10. If Menna wants the same number of each, what is the minimum number of pencils that she will have to buy?

LCM = 40 pencils

- 2 Nour makes snack bags for an upcoming trip. He has 6 oranges and 12 pieces of dried fruit. He wants the snack bags to be identical without any food left over. What is the greatest number of snack bags that Nour can make?

GCF = 6 bags

Assessment on Concept 2



First Choose the correct answer:

- 1 The **prime** number has only **two** factors.
☒ a prime ☐ b composite ☐ c even ☐ d odd
- 2 **20** is a common multiple of **10** and **5**.
☒ a 20 ☐ b 15 ☐ c 5 ☐ d 24
- 3 All the following numbers are multiples of **8**, except **36**.
☐ a 16 ☐ b 24 ☐ c 32 ☒ d 36
- 4 The greatest common factor of **12** and **6** is **6**... ..
☐ a 2 ☐ b 3 ☒ c 6 ☐ d 12

Complete the following sentences:

- 1 **1** is a common factor of all numbers.
- 2 **40, 25, 15** are multiples of the number **5**
- 3 **0** is a common multiple of all numbers.
- 4 The LCM of **15** and **30** is **30**
- 5 If $40 = 5 \times 8$, then **40** is a multiple of the two numbers **5** and **8** .

Put (✓) or (x):

- 1 **2** is an odd prime number. (**x**)
- 2 The GCF for **2** and **3** is **3**. (**x**)
- 3 The prime factors of **18** are **1, 2, 3, 6, 9, 18**. (**x**)
- 4 **14** is the LCM of **2** and **14**. (✓)
- 5 **0** and **7** are the multiples of **7**. (✓)

Fourth Answer the following:

Sameh wanted to divide **21** pens and **35** notebooks into groups, so that each group contained the same number of tools. What is the largest number of groups that can be formed for each type of tool?

How many pens are in each group? How many notebooks are in each group?

GCF = 7 groups, 3 pens, 5 notebooks

Unit 3 Multiplication with Whole Numbers

Concept 3.1 Models for Multiplication

Lesson

1

Using the Area Model to Multiply

1 Multiply using the area model:

1 $5 \times 24 = 120$

	20	4	
5	100	20	
	$100 + 20$		

2 $9 \times 385 = 3,465$

	300	80	5
9	2,700	720	45
	$2,700 + 720 + 45$		

3 $842 \times 6 = 5,052$

	800	40	2
6	4,800	240	12
	$4,800 + 240 + 12$		

4 $4 \times 217 = 868$

	200	10	7
4	800	40	28
	$800 + 40 + 28$		

5 $23 \times 18 = 414$

	10	8
20	200	160
3	30	24
	$200 + 160 + 30 + 24$	

6 $43 \times 54 = 2,322$

	50	4
40	2,000	160
3	150	12
	$2,000 + 160 + 150 + 12$	

7 $42 \times 102 = 4,284$

	100	2
40	4,000	80
2	200	4
	$4,000 + 80 + 200 + 4$	

8 $89 \times 450 = 40,050$

	400	50
80	32,000	4,000
9	3,600	450
	$32,000 + 4,000 + 3,600 + 450$	

9 $63 \times 257 = 16,191$

	200	50	7
60	12,000	3,000	420
3	600	150	21
	$12,000 + 3,000 + 420 + 600 + 150 + 21$		

10 $28 \times 134 = 3,752$

	100	30	4
20	2,000	600	80
8	800	240	32
	$2,000 + 600 + 80 + 800 + 240 + 32$		

11 $325 \times 12 = 3,900$

	300	20	5
10	3,000	200	50
2	600	40	10
	$3,000 + 200 + 50 + 600 + 40 + 10$		

12 $275 \times 45 = 12,375$

	200	70	5
40	8,000	2,800	200
5	1,000	350	25
	$8,000 + 2,800 + 200 + 1,000 + 350 + 25$		

2 Write the multiplication problem that expresses the following models, and then solve it:

1

	80	6
5	400	30

$$400 + 30 = 430$$

$$5 \times 86 = 430$$

2

	40	3
7	280	21

$$280 + 21 = 301$$

$$7 \times 43 = 301$$

3

	200	7
8	1,600	56

$$1,600 + 56 = 1,656$$

$$8 \times 207 = 1,656$$

4

	400	50	7
9	3,600	450	63

$$3,600 + 450 + 63 = 4,113$$

$$9 \times 457 = 4,113$$

5

	20	5
80	1,600	400
3	60	15

$$1,600 + 400 + 60 + 15 = 2,075$$

$$83 \times 25 = 2,075$$

6

	50	4
20	1,000	80
9	450	36

$$1,000 + 80 + 450 + 36 = 1,566$$

$$29 \times 54 = 1,566$$

7

	500	20
40	20,000	800
7	3,500	140

$$20,000 + 800 + 3,500 + 140 = 24,440$$

$$47 \times 520 = 24,440$$

8

	300	2
10	3,000	30
7	2,100	14

$$3,000 + 20 + 2,100 + 14 = 5,134$$

$$17 \times 302 = 5,134$$

9

	300	50	9
20	6,000	1,000	180
5	1,500	250	45

$$6,000 + 1,000 + 180 + 1,500 + 250 + 45 = 8,975$$

$$25 \times 359 = 8,975$$

10

	600	80	9
20	12,000	1,600	180
9	5,400	720	81

$$12,000 + 1,600 + 180 + 5,400 + 720 + 81 = 19,981$$

$$29 \times 689 = 19,981$$

11

	900	20	7
40	36,000	800	280
7	6,300	140	49

$$36,000 + 800 + 280 + 6,300 + 140 + 49 = 43,569$$

$$47 \times 927 = 43,569$$

3 Choose the correct answer:

- 1 The multiplication problem that expresses the corresponding area model is **5 X 183** .

5	500	400	15
---	-----	-----	----

(5 X 915 or **5 X 183** or 143 or 5 X 12)

- 2 The multiplication problem that expresses the corresponding model is **4 X 807** .

	800	7
4		

(4 X 870 or **4 X 807** or 4 X 780 or 4 X 708)

- 3 The multiplication problem that expresses the corresponding area model is **36 X 27** .

	30	6
20		
7		

(**36 X 27** or 63 X 72 or 207 X 306 or 26 X 37)

- 4 The multiplication problem that expresses the corresponding area model is **19 X 375** .

	300	70	5
10			
9			

(19 X 15 or 19 X 312 or **19 X 375** or 573 X 91)

- 5 The area model that represents 45×36 is **First model**

	30	6
40		
5		

or

	30	5
40		
6		

or

	3	6
4		
6		

or

	30	40
5		
6		

- 6 The area model that represents 24×308 is **Third model**

	30	8
20		
4		

or

	300	8
2		
4		

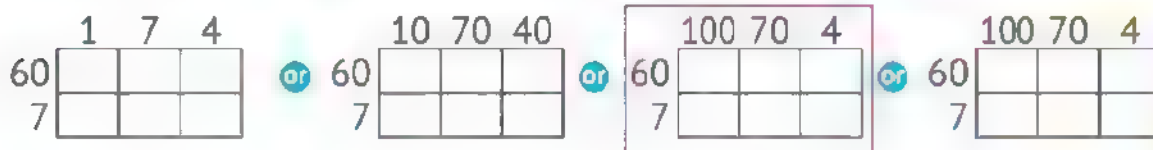
or

	300	8
20		
4		

or

	30	8
2		
4		

- 7 The area model that represents 67×174 is **Third model**



- 8 The multiplication problem that expresses the corresponding area model is **23×32** .

600	90
40	6

(690×46 or 640×96 or **23×32** or 203×32)

4 Answer the following:

- 1 Hazem bought **7** books, the price of each book is **10** pounds.
Find what Hazem paid.

.....**Hazem paid = $7 \times 10 = 70$ pounds**.....

- 2 Mona saves **100** pounds every month.
How much does Mona save in **5** months?

.....**Mona saved = $5 \times 100 = 500$ pounds**.....

- 3 Amr bought **4** suits, the price of one suit is **10,000** pounds.
Find what Amr paid.

.....**Amr paid = $4 \times 10,000 = 40,000$ pounds**.....

- 4 A box contains **200** balls. How many balls are in **eight** similar boxes?

.....**Number of balls = $8 \times 200 = 1,600$ balls**.....

Assessment

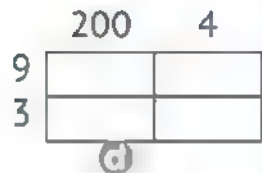
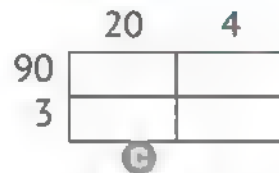
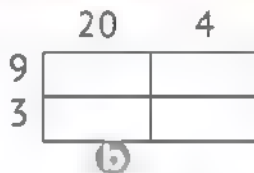
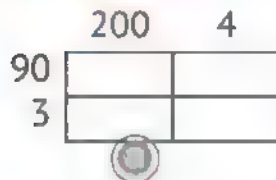
1 on Lesson 1

First

Choose the correct answer:

Unit 5

- 1 The area model that represents 93×204 is



- 2 The multiplication problem that expresses the following model is

(a) 75×48

(b) 705×408

(c) 75×408

(d) 705×48



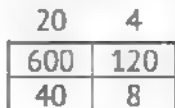
- 3 The multiplication problem that expresses the following model is

(a) 24×48

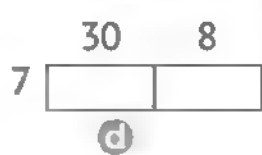
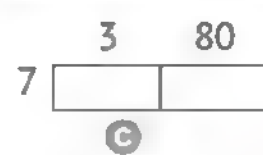
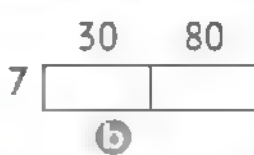
(b) 24×720

(c) 24×32

(d) 640×128



- 4 The model that expresses the following multiplication problem 7×308 is



Second

Complete the following:

1

40	20	3
	800	120

$40 \times 23 = 920$

2

6	200	40	7
	1,200	240	42

$6 \times 247 = 1,482$

3

30	40	5
	1,200	150
3	120	15

$33 \times 45 = 1,485$

4

70	40	5
	2,800	350
5	200	25

$75 \times 45 = 3,375$

Third

Answer the following:

Aya ran a 5-kilometer race on Saturday. If there are 1,000 meters in 1 kilometer, how many meters did she run?

$5 \times 1,000 = 5,000 \text{ m}$

Lesson

2 The Distributive Property of Multiplication

1 Find the product using the Distributive Property:

$$1 \quad 8 \times 27 = (8 \times 7) + (8 \times 20) = 56 + 160 = 216$$

$$2 \quad 6 \times 27 = (6 \times 7) + (6 \times 20) = 42 + 120 = 162$$

$$3 \quad 7 \times 306 = (7 \times 6) + (7 \times 300) = 42 + 2,100 = 2,142$$

$$4 \quad 9 \times 283 = (9 \times 3) + (9 \times 80) + (9 \times 200) = 27 + 720 + 1,800 = 2,547$$

$$5 \quad 15 \times 79 = (10 + 5) \times (70 + 9) \\ = (10 \times 70) + (10 \times 9) + (5 \times 70) + (5 \times 9) \\ = 700 + 90 + 350 + 45 = 1,185$$

$$6 \quad 23 \times 68 = (20 + 3) \times (60 + 8) = (20 \times 60) + (20 \times 8) + (3 \times 60) + (3 \times 8) \\ = 1,200 + 160 + 180 + 24 \\ = 1,564$$

$$7 \quad 24 \times 624 = (20 + 4) \times (600 + 20 + 4) \\ = (20 \times 600) + (20 \times 20) + (20 \times 4) + (4 \times 600) + (4 \times 20) + (4 \times 4) = 14,976$$

2 Solve using the area model:

$$1 \quad \begin{array}{|c|c|} \hline 40 & 5 \\ \hline 8 & \\ \hline \end{array} \\ (8 \times 40) + (8 \times 5) \\ = 320 + 40 \\ = 360$$

$$2 \quad \begin{array}{|c|c|} \hline 200 & 8 \\ \hline 7 & \\ \hline \end{array} \\ (7 \times 200) + (7 \times 8) \\ = 1,400 + 56 \\ = 1,456$$

$$3 \quad \begin{array}{|c|c|} \hline 50 & 3 \\ \hline 60 & \\ 4 & \\ \hline \end{array} \\ (60 \times 50) + (60 \times 3) + (4 \times 50) + (4 \times 3) \\ = 3,000 + 180 + 200 + 12 \\ = 3,392$$

$$4 \quad \begin{array}{|c|c|} \hline 40 & 7 \\ \hline 10 & \\ 3 & \\ \hline \end{array} \\ (10 \times 40) + (10 \times 7) + (3 \times 40) + (3 \times 7) \\ = 400 + 70 + 120 + 21 \\ = 611$$

5

	400	70	4
20			
4			

$$\begin{aligned}
 & (20 \times 400) + (20 \times 70) + (20 \times 4) \\
 & + (4 \times 400) + (4 \times 70) + (4 \times 4) \\
 & = 8,000 + 1,400 + 80 + 1,600 \\
 & + 280 + 16 = 11,376
 \end{aligned}$$

6

	100	70	4
60			
7			

$$\begin{aligned}
 & (60 \times 100) + (60 \times 70) + (60 \times 4) \\
 & + (7 \times 100) + (7 \times 70) + (7 \times 4) \\
 & = 6,000 + 4,200 + 240 + 700 \\
 & + 490 + 28 = 11,658
 \end{aligned}$$

3 Solve using the area model:

1

	20	7
8		

$$\begin{aligned}
 & (8 \times 20) + (8 \times 7) \\
 & = 160 + 56 = 216
 \end{aligned}$$

2

	600	7
9		

$$\begin{aligned}
 & (9 \times 600) + (9 \times 7) \\
 & = 5,400 + 63 = 5,463
 \end{aligned}$$

3

	70	3
40		
6		

$$\begin{aligned}
 & (40 \times 70) + (40 \times 3) + (6 \times 70) + (6 \times 3) \\
 & = 2,800 + 120 + 420 + 18 = 3,358
 \end{aligned}$$

4

	100	7
20		
3		

$$\begin{aligned}
 & (20 \times 100) + (20 \times 7) + (3 \times 100) + (3 \times 7) \\
 & = 2,000 + 140 + 300 + 21 = 2,461
 \end{aligned}$$

5

	500	80	4
20			
4			

$$\begin{aligned}
 & (20 \times 500) + (20 \times 80) + (20 \times 4) \\
 & + (4 \times 500) + (4 \times 80) + (4 \times 4) \\
 & = 10,000 + 1,600 + 80 + 2,000 \\
 & + 320 + 16 = 14,016
 \end{aligned}$$

6

	200	80	3
60			
4			

$$\begin{aligned}
 & (60 \times 200) + (60 \times 80) + (60 \times 3) \\
 & + (4 \times 200) + (4 \times 80) + (4 \times 3) \\
 & = 12,000 + 4,800 + 180 + 800 \\
 & + 320 + 12 = 18,112
 \end{aligned}$$

- 4 Using the rectangle model, find the result of 74×12 . Divide the numbers in three different ways:

1 $45 \times 27 = 1,215$ a

--

b

--

c

--

2 $73 \times 15 = 1,095$ a

--

b

--

c

--

3 $21 \times 479 = 10,059$ a

--

b

--

c

--

4 $38 \times 208 = 7,904$ a

--

b

--

c

--

- 5 Complete the following:

1 $178 \times 8 = 8 \times (\dots 100 \dots + \dots 70 \dots + \dots 8 \dots)$

2 $6 \times (200 + 30 + 7) = \dots 6 \dots \times \dots 237 \dots$

3 $45 \times 36 = (\dots 40 \dots + \dots 5 \dots) \times (\dots 30 \dots + \dots 6 \dots)$

4 72×15

$= (70 \times \dots 10 \dots) + (70 \times \dots 5 \dots) + (2 \times \dots 10 \dots) + (2 \times \dots 5 \dots)$

5 $(30 \times 500) + (30 \times 20) + (7 \times 500) + (7 \times 20) = \dots 37 \dots \times \dots 520 \dots$

6

		20	5
30	600	150	
7	140	35	

7

		200	3
40	8,000	120	
4	800	12	

6 Choose the correct answer:

1 $5 \times (600 + 2) = 5 \times 602$ (5×8 or 5×62 or 5×602 or $5 \times 6,002$)

2 $8 \times 420 = 8 \times (400 + 20)$ ($4 + 20$ or $+ 20$ or $400 + 2$ or $400 + 20$)

3 $12 \times 200 + 12 \times 30 + 12 \times 5 = 12 \times 235$ (12 or 205 or 230 or 235)

4 $56 \times 93 = (50 + 6) \times (90 + 3)$
 ($(50+6) \times (90+3)$ or $(50 \times 6) + (90 \times 3)$ or $(50+6) + (90+3)$ or $(5+6) \times (9+3)$)

5 $(80 \times 50) + (80 \times 7) + (3 \times 50) + (3 \times 7) = 83 \times 57$
 (85×37 or 83×57 or 87×35 or 78×35)

6 The multiplication problem that expresses the corresponding area model is **56×56** .

2,500	300
300	36

(56×56 or 25×36 or 65×65 or 300×36)

7 The multiplication problem that expresses the corresponding area model is **48×207**

	200	7
40		
8		

(48×270 or 48×27 or 48×207 or 48×9)

8 The area model that represents $(8 \times 200) + (8 \times 6)$ is **First model**

	200	6
8		

or

	20	6
8		

or

	200	60
8		

or

	20	60
8		

9 The area model that represents $(20 + 8) \times (90 + 4)$ is **Third model**

	90	8
20		
4		

or

	9	4
2		
8		

or

	90	4
20		
8		

or

	900	4
200		
8		

10 The area model that represents

$(50 \times 70) + (50 \times 3) + (4 \times 70) + (4 \times 3)$ is **Second model**

	4	3
50		
70		

or

	70	3
50		
4		

or

	70	4
50		
3		

or

	7	3
5		
4		

First Choose the correct answer:

1 $7 \times (500 + 4) = 7 \times 504$

a 7×54

b 7×504

c $7 \times 5,004$

d 7×9

2 $(60 \times 20) + (60 \times 3) + (7 \times 20) + (7 \times 3) = 67 \times 23$

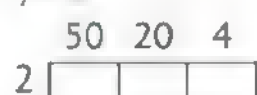
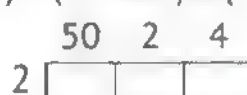
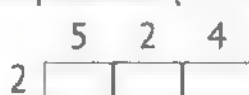
a 67×23

b 62×73

c 63×27

d 76×32

3 The area model that represents $(2 \times 500) + (2 \times 20) + (2 \times 4)$ is



4 The problem that represents the opposite area model is $4 \times (600 + 9)$

a $4 \times (6 + 9)$

b $4 \times (60 + 9)$

c $4 \times (600 + 9)$

d $4 \times (60 + 90)$



5 $15 \times 56 = 15 \times (50 + 6)$

a $50 + 6$

b $5 + 6$

c $50 + 60$

d $5 + 60$

Second Complete the following:

1 $7,480 \times 7 = 7 \times (7,000 + 400 + 80) = 52,360$

2 $23 \times 46 = (20 \times 40) + (20 \times 6) + (3 \times 40) + (3 \times 6)$

3 $24 \times 506 = (20 \times 500) + (20 \times 6) + (4 \times 500) + (4 \times 6)$

4 $3 \times 6,230 = 3 \times (6,000 + 200 + 30)$

5 $2 \times 505 = (2 \times 500) + (2 \times 5)$

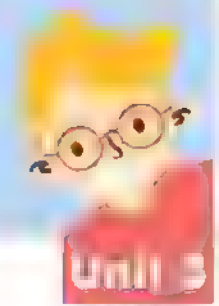
Third Multiply using the Distributive Property:

1 $2 \times 89 = 2 \times (80 + 9) = (2 \times 80) + (2 \times 9)$
 $= 160 + 18 = 178$

2 $45 \times 89 = (40 + 5) \times (80 + 9) = (40 \times 80) + (40 \times 9) + (5 \times 80) + (5 \times 9)$
 $= 3,200 + 360 + 400 + 45$
 $= 4,005$

3 $627 \times 43 = (600 + 20 + 7) \times (40 + 3)$
 $(600 \times 40) + (600 \times 3) + (20 \times 40) + (20 \times 3) + (7 \times 40) + (7 \times 3)$
 $= 24,000 + 1,800 + 800 + 60 + 280 + 21 = 26,961$

Assessment on Concept 1



First Choose the correct answer:

1) $5 \times 1,000 = \dots$ **5,000**

a) 50

b) 500

c) **5,000**

d) 50,000

2) $25 \times 80 =$ **$2 \times 1,000$**

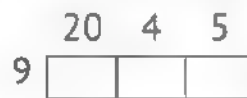
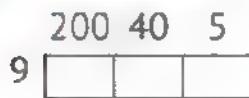
a) $2 \times 10,000$

b) **$2 \times 1,000$**

c) 2×100

d) 2×10

3) The area model that represents $(9 \times 200) + (9 \times 40) + (9 \times 5)$ is _____.



a)

b)

c)

d)

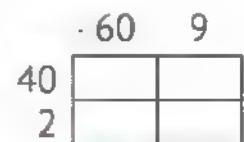
4) The multiplication problem that the opposite model represents is

a) 46×29

b) 49×62

c) **42×69**

d) 26×94



5) The multiplication problem that the opposite model represents is **12×302** .

a) 12×32

b) **12×302**

c) 102×302

d) 102×32

3,000	20
600	4

Second Complete the following:

1) $8 \times 10,000 = 80,000$

2) $1,000 \times \dots$ **7** $\dots = 7,000$

3) \dots **12** $\times \dots$ **57** $\dots = (10 \times 50) + (10 \times 7) + (2 \times 50) + (2 \times 7)$

4) $9 \times$ **623** $= 9 \times (600 + 20 + 3)$ 5) $7 \times 903 = (7 \times$ **900** $) + (7 \times$ **3** $)$

Third Solve the following problems using the mentioned strategy:

1) 2×47 (Distributive Property)

$2 \times (40 + 7) = (2 \times 40) + (2 \times 7)$

$80 + 14 = 94$

2) 14×23 (Area Model)

$200 + 30 + 80 + 12$

322

$20 \quad 3$

10

200	30
80	12

4

Fourth Answer the following:

Omar owns **12** buses to transport tourists, each bus can carry **25** passengers. How many passengers can Omar carry each day if each bus is full?

$12 \times 25 = 300$ passengers

Concept 3.2

Multiplying 4-Digit Numbers by 2-Digit Numbers

Lessons

3-5

Multiplying by a 2-Digit Numbers Using Algorithm

Multiplying Multi-Digit Numbers

Multiplication Problems in the Real World

1 Find the product using the standard algorithm for multiplication:

$$\begin{array}{r} \text{1} \quad 82 \\ \times 4 \\ \hline 328 \end{array}$$

$$\begin{array}{r} \text{2} \quad 608 \\ \times 9 \\ \hline 5,472 \end{array}$$

$$\begin{array}{r} \text{3} \quad 264 \\ \times 7 \\ \hline 1,848 \end{array}$$

$$\begin{array}{r} \text{4} \quad 9324 \\ \times 8 \\ \hline 74,592 \end{array}$$

$$\begin{array}{r} \text{5} \quad 39 \\ \times 25 \\ \hline 195 \\ + 780 \\ \hline 975 \end{array}$$

$$\begin{array}{r} \text{6} \quad 75 \\ \times 36 \\ \hline 450 \\ + 2250 \\ \hline 2,700 \end{array}$$

$$\begin{array}{r} \text{7} \quad 306 \\ \times 18 \\ \hline 2,448 \\ + 3,060 \\ \hline 5,508 \end{array}$$

$$\begin{array}{r} \text{8} \quad 617 \\ \times 54 \\ \hline 2,468 \\ + 30,850 \\ \hline 33,318 \end{array}$$

$$\begin{array}{r} \text{9} \quad 4,107 \\ \times 36 \\ \hline 24,642 \\ + 123,210 \\ \hline 147,852 \end{array}$$

$$\begin{array}{r} \text{10} \quad 6,073 \\ \times 48 \\ \hline 48,584 \\ + 242,920 \\ \hline 291,504 \end{array}$$

$$\begin{array}{r} \text{11} \quad 8,347 \\ \times 76 \\ \hline 50,082 \\ + 584,290 \\ \hline 634,372 \end{array}$$

$$\begin{array}{r} \text{12} \quad 9,678 \\ \times 32 \\ \hline 19,356 \\ + 290,340 \\ \hline 309,696 \end{array}$$

2 Find the product using the area model:

1 $9,532 \times 12 = 114,384$

	9,000	500	30	2
10	90,000	5,000	300	20
2	18,000	1,000	60	4

2 $6,324 \times 25 = 158,100$

	6,000	300	20	4
20	120,000	6,000	400	80
5	30,000	1,500	100	20

3 $3,214 \times 37 = 118,918$

	3,000	200	10	4
30	90,000	6,000	300	120
7	21,000	1,400	70	28

4 $6,312 \times 72 = 454,464$

	6,000	300	10	2
70	420,000	21,000	700	140
2	12,000	600	20	4

5 $9,231 \times 28 = 258,468$

	9,000	200	30	1
20	180,000	4,000	600	20
8	72,000	1,600	240	8

6 $6,324 \times 37 = 233,988$

	6,000	300	20	4
30	180,000	9,000	600	120
7	42,000	2,100	140	28

3 Find the product using the partial products model:

1 $24 \times 34 =$

816

2 $37 \times 21 =$

777

3 $62 \times 206 =$

12,772

4 $73 \times 215 =$

15,695

5 $42 \times 2,034 =$

85,428

6 $36 \times 6,415 =$

230,940

4 Estimate the product of the multiplication, and then find the actual product:

1 $7,325 \times 12$

Actual product	Estimate
$\begin{array}{r} 7,325 \\ \times 12 \\ \hline 14,650 \\ + 73,250 \\ \hline 87,900 \end{array}$	$\begin{array}{r} 7,000 \\ \times 10 \\ \hline 70,000 \end{array}$

2 $4,537 \times 37$

Actual product	Estimate
$\begin{array}{r} 4,537 \\ \times 37 \\ \hline 31,759 \\ + 136,110 \\ \hline 167,869 \end{array}$	$\begin{array}{r} 5,000 \\ \times 40 \\ \hline 200,000 \end{array}$

3 $2,314 \times 14$

Actual product	Estimate
$\begin{array}{r} 2,314 \\ \times 14 \\ \hline 9,256 \\ + 23,140 \\ \hline 32,396 \end{array}$	$\begin{array}{r} 2,000 \\ \times 10 \\ \hline 20,000 \end{array}$

4 $6,324 \times 34$

Actual product	Estimate
$\begin{array}{r} 6,324 \\ \times 34 \\ \hline 25,296 \\ + 189,720 \\ \hline 215,016 \end{array}$	$\begin{array}{r} 6,000 \\ \times 30 \\ \hline 180,000 \end{array}$

5 Answer the following:

- 1 Each river bus can carry **22** passengers at a time.

What is the maximum number of passengers that the river bus can carry during **25** trips?

$22 \times 25 = 550$ passengers

Number Sense and Operations

- 2 A rectangular piece of land has a length of 256 meters, and a width of 62 meters. Find its area.

$$\text{Area} = 256 \times 62 = 15,872 \text{ square meters}$$

- 3 Khaled bought 34 meters of cloth, the price of one meter was 9,560 piasters. What is the price of the cloth that Khaled bought?

$$9,560 \times 34 = 325,040 \text{ piasters}$$

- 4 A bus is 1,285 centimeters long. How long are 21 buses?

$$1,285 \times 21 = 26,985 \text{ cm}$$

- 5 Marwan bought a car, and agreed with the owner of the car showroom to pay for it in 12 equal installments, the value of each installment is 9,865 pounds. What is the price of the car?

$$9,865 \times 12 = 118,380 \text{ pounds}$$

- 6 Mona saves 1,023 pounds every month. What is the total amount that Mona saves in 18 months?

$$1,023 \times 18 = 18,414 \text{ pounds}$$

- 7 16 people participated in an exhibition, and each won 8,234 pounds. How much did they all win?

$$8,234 \times 16 = 131,744 \text{ pounds}$$

- 8 A bag of fruit has a mass of 2,445 grams. What is the mass of 45 similar bags?

$$2,445 \times 45 = 110,025 \text{ g}$$

Assessment on Concept 2



First Choose the correct answer:

- 1 The problem that represents the opposite area model is

a $5,403 \times 67$ **b** $5,043 \times 67$
c $5,430 \times 67$ **d** 543×67

	5,000	400	3
60			
7			

- 2 The problem that represents the opposite area model is

a $3,502 \times 43$ **b** $3,052 \times 43$
c $3,520 \times 43$ **d** 352×43

120,000	2,000	80
9,000	150	6

- 3 The model that represents $6,350 \times 73$ is

	6,000	300	50
70			
3			

a

	6,000	300	5
70			
3			

b

	6,000	30	5
70			
3			

c

	600	30	5
70			
3			

d

- 4 $3,006 \times 25 =$

a 21,042 **b** 90,000 **c** 7,650 **d** 75,150

- 5 $2,300 \times 30 =$

a 69,000 **b** 6,900 **c** 60,900 **d** 96,000

Second Solve the following problems using the mentioned strategy:

- 1 $5,080 \times 23$

(Distributive Property)

$$\begin{aligned} & (5,000 + 80) \times (20 + 3) \\ &= (5,000 \times 20) + (5,000 \times 3) \\ & \quad + (80 \times 20) + (80 \times 3) \dots \\ &= 116,840 \end{aligned}$$

- 2 $9,007 \times 64$

(Standard Algorithm)

$$\begin{array}{r} 9,007 \\ \times 64 \\ \hline 36,028 \\ + 540,420 \\ \hline 576,448 \end{array}$$

- 3 $2,125 \times 74$

(Area Model)

	2,000	100	20	5
70	140,000	7,000	1,400	350
4	8,000	400	80	40

$$= 157,250$$

Third Answer the following:

- Huda bought 18 kg of bananas, the price of a kilogram was 15 pounds, and she bought 18 kilograms of mangoes, the price of a kilogram was 25 pounds. What is the total amount that Huda paid?

$$18 \times 15 + 18 \times 25 = 270 + 450 = 720 \text{ pounds}$$

Theme

2

Mathematical Operations and
Algebraic Thinking

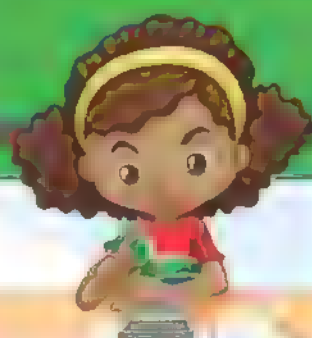
DIVIDE: $29 \div 3$

MULTIPLY: 9×3

SUBTRACT: $29 - 21$

DROP THE DIGIT: 1

$$\begin{array}{r} 9 \\ 3 \overline{) 291} \\ \underline{-6} \\ 29 \\ \underline{-27} \\ 21 \end{array}$$



Theme Units:

Unit

4

Division with Whole Numbers

Concept 4.1: Models for Division

Concept 4.2: Dividing by 2-Digit Divisors

Unit

5

Multiplication and Division with Decimals

Concept 5.1: Multiplying Decimals

Concept 5.2: Dividing Decimals 2

Unit

6

Numerical Expressions and Patterns

Concept 6.1: Evaluating Numerical Expressions
and Patterns

Unit 4 Division with Whole Numbers

Concept 4.1 Models for Division

Lessons 1&2 Dividing by a Two-Digit Number Estimating Quotients

1 Divide using the area model:

1 $96 \div 4 = 24$

	20	4	
	96	16	
4	- 80	- 16	
	16	00	

$20 + 4 = 24$

2 $87 \div 5 = 17 \text{ (R2)}$

	10	7	
	87	37	
5	- 50	- 35	
	37	2	

$10 + 7 = 17$

3 $85 \div 3 = 28 \text{ (R1)}$

	20	8	
	85	25	
3	- 60	- 24	
	25	1	

$20 + 8 = 28$

4 $465 \div 5 = 93$

	50	40	3	
	465	215	15	
5	- 250	- 200	- 15	
	215	15	00	

$50 + 40 + 3 = 93$

5 $378 \div 6 = 63$

	50	10	3	
	378	78	18	
6	- 300	- 60	- 18	
	78	18	00	

$50 + 10 + 3 = 63$

6 $358 \div 4 = 89 \text{ (R2)}$

	50	30	9	
	358	158	38	
4	- 200	- 120	- 36	
	158	38	2	

$50 + 30 + 9 = 89$

Mathematical Operations and Algebraic Thinking

7 $946 \div 2 = 473$

	400	50	20	3
2	946	146	46	6
	- 800	- 100	- 40	- 6
	146	46	6	0

$400 + 50 + 20 + 3 = 473$

8 $861 \div 7 = 123$

	100	20	3
7	861	161	21
	- 700	- 140	- 21
	161	21	00

$100 + 20 + 3 = 123$

9 $898 \div 8 = 112 \text{ (R2)}$

	100	10	2
7	898	98	18
	- 800	- 80	- 16
	98	18	2

$100 + 10 + 2 = 112$

10 $1,378 \div 2 = 689$

	500	100	80	9
2	1,378	378	178	18
	- 1,000	- 200	- 160	- 18
	378	178	18	00

$500 + 100 + 80 + 9 = 689$

11 $2,754 \div 3 = 918$

	500	400	10	8
3	2,754	1,254	54	24
	- 1,500	- 1,200	- 30	- 24
	1,254	54	24	0

$500 + 400 + 10 + 8 = 918$

12 $3,846 \div 5 = 769 \text{ (R1)}$

	500	200	60	9
5	3,846	1,346	346	46
	- 2,500	- 1,000	- 300	- 45
	1,346	346	46	1

$500 + 200 + 60 + 9 = 769$

13 $8,444 \div 6 = 1,407 \text{ (R2)}$

	1,000	400	7
6	8,444	2,444	44
	- 6,000	- 2,400	- 42
	2,444	44	2

$1,000 + 400 + 7 = 1,407$

2 Divide using the area model:

1 $705 \div 15 = 47$

	20	20	7
15	705	405	105
	- 300	- 300	- 105
	405	105	00

$20 + 20 + 7 = 47$

2 $882 \div 13 = 67 \text{ (R11)}$

	50	10	7
13	882	232	102
	- 650	- 130	- 91
	232	102	11

$50 + 10 + 7 = 67$

3 $714 \div 21 = 34$

	10	10	10	4
21	714	504	294	84
	- 210	- 210	- 210	- 84
	504	294	84	00

$10 + 10 + 10 + 4 = 34$

4 $1,530 \div 34 = 45$

	20	20	5
34	1,530	850	170
	- 680	- 680	- 170
	850	170	00

$20 + 20 + 5 = 45$

5 $1,512 \div 24 = 63$

	50	10	3
24	1,512	312	72
	- 1,200	- 240	- 72
	312	72	00

$50 + 10 + 3 = 63$

6 $1,120 \div 32 = 35$

	20	10	5
32	1,120	480	160
	- 640	- 320	- 160
	480	160	00

$20 + 10 + 5 = 35$

7 $7,584 \div 32 = 237$

	100	100	30	7
32	7,584	4,384	1,184	224
	- 3,200	- 3,200	- 960	- 224
	4,384	1,184	224	00

$100 + 100 + 30 + 7 = 237$

8 $7,175 \div 35 = 205$

	100	100	5
35	7,175	3,675	175
	- 3,500	- 3,500	- 175
	3,675	175	00

$100 + 100 + 5 = 205$

9 $16,779 \div 47 = 357$

	200	100	50	7
47	16,779	7,379	2,679	329
	- 9,400	- 4,700	- 2,350	- 329
	7,379	2,679	329	00

$200 + 100 + 50 + 7 = 357$

Mathematical Operations and Algebraic Thinking

10 $32,144 \div 82 = 392$

	200	100	90	2
82	32,144	15,744	7,544	164
	-16,400	-8,200	-7,380	-164
	15,744	7,544	164	00

$200 + 100 + 90 + 2 = 392$

11 $23,595 \div 39 = 605$

	500	100	5
39	23,595	4,095	195
	-19,500	-3,900	-195
	4,095	295	00

$500 + 100 + 5 = 605$

12 $67,814 \div 41 = 1,654$

	1,000	600	50	4
41	67,814	26,814	2,214	164
	41,000	24,600	2,050	164
	26,814	2,214	164	00

$1,000 + 600 + 50 + 4 = 1,654$

13 $64,158 \div 52 = 1,233 \text{ (R42)}$

	1,000	200	30	3
52	64,158	12,158	1,758	198
	52,000	10,400	1,560	156
	12,158	1,758	198	42

$1,000 + 200 + 30 + 3 = 1,233$

3 Complete the area model, then find the quotient:

1

	20	4
23	552	92
	-460	-92
	92	00

$552 \div 23 = 24$

2

	60	3
24	1,522	82
	-1440	-72
	82	10

$1,522 \div 24 = 63 \text{ (R10)}$

3

	100	3
45	4,635	135
	-4,500	-135
	135	000

$4,635 \div 45 = 103$

4

	200	40	3
32	7,776	1,376	96
	-6,400	-1,280	-96
	1,376	96	00

$7,776 \div 32 = 243$

5

	100	20	3
15	1,856	356	56
	-1,500	-300	-45
	356	56	11

$1,856 \div 15 = 123 \text{ (R11)}$

6

	300	10	3
32	10,016	416	96
	-9,600	-320	-96
	416	96	00

$10,016 \div 32 = 313$

7

	100	100	40	5
	8,575	5,075	1,575	175
35	-3,500	-3,500	-1,400	-175
	5,075	1,575	175	000

$$8,575 \div 35 = 245$$

8

	300	30	30	3
	7,631	1,331	701	71
21	-6,300	-630	-630	-63
	1,331	701	71	8

$$7,631 \div 21 = 363 \text{ (R8)}$$

4 Complete the area model, then complete the table:

	Area Model	Dividend	Divisor	Quotient	Remainder
1	<div><div>1,00020040.8</div><div><div>56,16011,1602,160360</div><div>4545,0009,0001,800-360</div><div>11,1602,160360000</div></div></div>	56,160	45	1,248	0
2	<div><div>200300402</div><div><div>16,81710,6171,31777</div><div>31-6,2009,3001,240-62</div><div>10,6171,3177715</div></div></div>	16,817	31	542	15
3	<div><div>2,000200202</div><div><div>53,3285,32852848</div><div>24-48,000-4,800-48048</div><div>5,3285284800</div></div></div>	53,328	24	2,222	0
4	<div><div>300507</div><div><div>25,7164,116516</div><div>7221,600-3,600-504</div><div>4,11651612</div></div></div>	25,716	72	357	12
5	<div><div>1001002020</div><div><div>10,0925,8921,692852</div><div>424,2004,200-840-840</div><div>5,8921,69285212</div></div></div>	10,092	42	240	12

5 Estimate the **quotient**, then find the **actual result**. Use the strategy you prefer:

1 $3,248 \div 8 = 406$

Actual result

	400	6
8	3,248	48
	- 3,200	- 48
	48	00

$$3,248 \div 8$$

Estimate = $3,200 \div 8 = 400$

2 $6,884 \div 6 = 1,147 \text{ (R2)}$

Actual result

	1,000	100	40	7
6	6,884	884	284	44
	- 6,000	- 600	- 240	- 42
	884	284	44	2

$$6,884 \div 6$$

Estimate = $6,600 \div 6 = 1,100$

3 $36,024 \div 9 = 4,002 \text{ (R6)}$

Actual result

	4,000	2
9	36,024	24
	- 36,000	- 18
	24	6

$$36,024 \div 9$$

Estimate = $36,000 \div 9 = 4,000$

4 $22,425 \div 65 = 345$

Actual result

	300	40	5
65	22,425	2,925	325
	- 19,500	- 2,600	- 325
	2,825	325	000

$$22,425 \div 65$$

Estimate = $21,000 \div 70 = 300$

5 $3,892 \div 83 = 46 \text{ (R74)}$

Actual result

	40	6
83	3,892	572
	- 3,320	- 498
	572	74

$$3,892 \div 83$$

Estimate = $4,000 \div 80 = 50$

6 $3,511 \div 72 = 48 \text{ (R55)}$

Actual result

	40	8
72	3,511	631
	- 2,880	- 576
	631	55

$$3,511 \div 72$$

Estimate = $3,500 \div 70 = 50$

7] $9,888 \div 24 = 412$

Actual result

	400	10	2
	9,888	288	48
24	- 9,600	- 240	- 48
	288	48	00

$9,888 \div 24$

Estimate = $10,000 \div 20 = 500$

8] $107,310 \div 42 = 2,555$

Actual result

	2,000	500	50	5
	107,310	23,310	2,310	210
42	- 89,000	- 21,000	- 2,100	- 210
	23,310	2,310	210	000

$107,310 \div 42$

Estimate = $100,000 \div 40 = 2,500$

9] $11,310 \div 45 = 251 \text{ (R15)}$

Actual result

	200	50	1
	11,310	2,310	60
45	- 9,000	- 2,250	- 45
	2,310	60	15

$11,310 \div 45$

Estimate = $10,000 \div 40 = 250$

10] $16,324 \div 53 = 308$

Actual result

	300	8
	16,324	424
53	- 15,900	- 424
	424	000

$16,324 \div 53$

Estimate = $15,000 \div 50 = 300$



للف الخامس الابتدائي

أحرص
على اقتناء كتاب
الاستاذ

Assessment

1

on Lessons 1 & 2

Unit 4

First: Choose the correct answer:

1 The division problem that expresses the

opposite model is **$1,960 \div 8 = 245$**

☐ a $1,960 \div 8 = 2,225$ ☐ b $360 \div 8 = 245$

☒ c $1,960 \div 8 = 245$ ☐ d $1,960 \div 8 = 605$

2 The divisor in the corresponding model is **14**

☒ a 14 ☐ b 16

☐ c 226 ☐ d 2

3 The remainder of the division in the opposite model is **0**

☐ a 12 ☐ b 326

☐ c 72 ☒ d 0

4 The quotient in the opposite model is **4,035**

☐ a 435 ☐ b 4,305

☒ c 4,350 ☐ d 4,035

5 If $45 \times 12 = 540$, then the remainder of $545 \div 12$ is **5**

☒ a 5 ☐ b 12 ☐ c 45 ☐ d 540

	200	20	20	5
	1,960	360	200	40
8	- 1,600	- 160	- 160	- 40
	360	200	40	0

	10	6
	226	86
14	- 140	- 84
	86	2

	300	20	6
	3,912	312	72
12	- 3,600	- 240	- 72
	312	72	0

	4,000	30	5
	254,205	2,205	315
63	- 252,000	- 1,890	- 315
	220,5	315	0

Second: Use the area model to solve the following problems:

1 $6,542 \div 8$

	800	10	7
	6,542	142	62
8	- 6,400	- 80	- 56
	142	62	6

$= 817 (R6)$

2 $3,634 \div 12$

	300	2
	3,634	34
12	- 3,600	- 24
	34	10

$= 302 (R10)$

3 $144,370 \div 45$

	3,000	200	8
	144,370	9,370	370
45	- 135,000	- 9,000	- 360
	9,370	370	10

$= 3,208 (R10)$

Third: Answer the following:

1 A red hat costs **400** LE, which is **4** times as much as a blue hat. How much does a blue hat cost? **$400 \div 4 = 100$ LE**

2 There are **138** job applicants for a vacancy. They will need to place the applicants in **6** rooms while they fill out the application. How many people will be in each room? **$138 \div 6 = 23$ persons**

Assessment on Concept 1



Choose the correct answer :

1 The quotient in the opposite model is **146** .

- a 1,226 b 24
c 3,504 d 146

	100	20	20	6
	3,504	1,104	624	144
24	- 2,400	- 480	- 480	- 144
	1,104	624	144	0

2 The remainder of division in the opposite model is **4** .

- a 15 b 6,154
c 410 d 4

	400	10
	6,154	154
15	- 6,000	- 150
	154	4

3 If $45 \times 24 = 1,080$, then $10,800 \div 24 = \dots$ **450** \dots .

- a 45 b 24 c 450 d 240

4 If $26 \times 155 + 20 = 4,050$, then the remainder of $4,050 \div 26$ is **20** .

- a 20 b 26 c 155 d 4,050

Divide using the strategy you prefer:

1 $45,240 \div 9 = \mathbf{5,026 \text{ (R6)}}$

2 $23,154 \div 6 = \mathbf{3,859}$

3 $3,096 \div 12 = \mathbf{258}$

4 $78,321 \div 26 = \mathbf{3,012 \text{ (R9)}}$

Complete the following:

1 $45,000 \div 5 = \mathbf{9,000}$.

2 $40,000 \div \dots \mathbf{5} \dots = 8,000$

3 $\mathbf{340,000} \div 34 = 10,000$

4 $\mathbf{36,000} \div 12 = 3,000$

Answer the following:

1 If the profit of one of the shops is **7,280** pounds, and they will be distributed equally among **5** people. What is the share of each person?

$\mathbf{7,280 \div 5 = 1,456 \text{ pounds ...}}$

2 If **168** pupils are divided equally into groups of **12** pupils each, how many groups can we get?

$\mathbf{168 \div 12 = 14 \text{ groups}}$

Concept 4.2 Dividing by 2-Digit Divisors

LESSONS

3-5

Using the Division Algorithm

The Relation Between Division and Multiplication

Multistep Story Problems

1 Divide using the standard division algorithm:

1 $75 \div 5 = 15$

$$\begin{array}{r} 15 \\ 5 \overline{) 75} \\ \underline{- 5} \\ 25 \\ \underline{- 25} \\ 00 \end{array}$$

2 $86 \div 3 = 28 \text{ (R2)}$

$$\begin{array}{r} 28 \\ 3 \overline{) 86} \\ \underline{- 6} \\ 26 \\ \underline{- 24} \\ 02 \end{array}$$

3 $156 \div 6 = 26$

$$\begin{array}{r} 26 \\ 6 \overline{) 156} \\ \underline{- 12} \\ 36 \\ \underline{- 36} \\ 00 \end{array}$$

4 $834 \div 4 = 208 \text{ (R2)}$

$$\begin{array}{r} 208 \\ 4 \overline{) 834} \\ \underline{- 8} \\ 034 \\ \underline{- 32} \\ 2 \end{array}$$

5 $756 \div 3 = 252$

$$\begin{array}{r} 252 \\ 3 \overline{) 756} \\ \underline{- 6} \\ 15 \\ \underline{- 15} \\ 6 \\ \underline{- 6} \\ 0 \end{array}$$

6 $917 \div 7 = 131$

$$\begin{array}{r} 131 \\ 7 \overline{) 917} \\ \underline{- 7} \\ 21 \\ \underline{- 21} \\ 7 \\ \underline{- 7} \\ 0 \end{array}$$

7 $1,475 \div 5 = 295$

$$\begin{array}{r} 0295 \\ 5 \overline{) 1,475} \\ \underline{- 10} \\ 47 \\ \underline{- 45} \\ 25 \\ \underline{- 25} \\ 00 \end{array}$$

8 $3,778 \div 8 = 472 \text{ (R2)}$

$$\begin{array}{r} 0472 \\ 8 \overline{) 3,778} \\ \underline{- 32} \\ 57 \\ \underline{- 56} \\ 18 \\ \underline{- 16} \\ 2 \end{array}$$

9 $4,935 \div 7 = 705$

$$\begin{array}{r} 0705 \\ 7 \overline{) 4,935} \\ \underline{- 49} \\ 035 \\ \underline{- 35} \\ 00 \end{array}$$

10 $8,016 \div 4 = 2,004$

$$\begin{array}{r} 2004 \\ 4 \overline{) 8,016} \\ \underline{- 8} \\ 0016 \\ \underline{- 16} \\ 00 \end{array}$$

11 $9,177 \div 3 = 3,059$

$$\begin{array}{r} 3059 \\ 3 \overline{) 9,177} \\ \underline{- 9} \\ 0177 \\ \underline{- 15} \\ 27 \\ \underline{- 27} \\ 00 \end{array}$$

12 $42,036 \div 6 = 7,006$

$$\begin{array}{r} 07006 \\ 6 \overline{) 42,036} \\ \underline{- 42} \\ 00036 \\ \underline{- 36} \\ 00 \end{array}$$

2 Divide using the standard division algorithm:

1 $360 \div 15 = \dots 24 \dots$

$$\begin{array}{r} 024 \\ 15 \overline{) 360} \\ \underline{- 30} \\ 60 \\ \underline{- 60} \\ 00 \end{array}$$

Draft

2 $858 \div 78 = \dots 11 \dots$

$$\begin{array}{r} 011 \\ 78 \overline{) 858} \\ \underline{- 78} \\ 78 \\ \underline{- 78} \\ 00 \end{array}$$

Draft

3 $8,000 \div 64 = \dots 125 \dots$

$$\begin{array}{r} 0125 \\ 64 \overline{) 8,000} \\ \underline{- 64} \\ 160 \\ \underline{- 128} \\ 320 \\ \underline{- 320} \\ 000 \end{array}$$

Draft

4 $2,870 \div 14 = \dots 205 \dots$

$$\begin{array}{r} 0205 \\ 14 \overline{) 2,870} \\ \underline{- 28} \\ 0070 \\ \underline{- 70} \\ 00 \end{array}$$

Draft

Mathematical Operations and Algebraic Thinking

5 $3,636 \div 12 = 303$

$$\begin{array}{r} 0303 \\ 12 \overline{) 3,636} \\ \underline{36} \\ 0036 \\ \underline{36} \\ 00 \end{array}$$

Draft

6 $4,600 \div 37 = 124 \text{ (R12)}$

$$\begin{array}{r} 0124 \\ 37 \overline{) 4,600} \\ \underline{37} \\ 90 \\ \underline{74} \\ 160 \\ \underline{148} \\ 12 \end{array}$$

Draft

7 $4,935 \div 47 = 105$

$$\begin{array}{r} 0105 \\ 47 \overline{) 4,935} \\ \underline{47} \\ 235 \\ \underline{235} \\ 000 \end{array}$$

Draft

8 $14,552 \div 68 = 214$

$$\begin{array}{r} 00214 \\ 68 \overline{) 14,552} \\ \underline{136} \\ 95 \\ \underline{68} \\ 272 \\ \underline{272} \\ 000 \end{array}$$

Draft

9 $15,632 \div 45 = 347 \text{ (R17)}$

$$\begin{array}{r} 00347 \\ 45 \overline{) 15,632} \\ \underline{135} \\ 213 \\ \underline{180} \\ 332 \\ \underline{315} \\ 17 \end{array}$$

Draft

10 $105,821 \div 41 = 2,581$

$$\begin{array}{r} 002,581 \\ 41 \overline{) 105,821} \\ \underline{82} \\ 238 \\ \underline{205} \\ 332 \\ \underline{328} \\ 41 \\ \underline{41} \\ 00 \end{array}$$

Draft

11 $57,564 \div 26 = 2,214$

$$\begin{array}{r} 02,214 \\ 26 \overline{) 57,564} \\ \underline{52} \\ 55 \\ \underline{52} \\ 36 \\ \underline{26} \\ 141 \\ \underline{141} \\ 000 \end{array}$$

Draft

12 $56,373 \div 23 = 2,451$

$$\begin{array}{r} 02,451 \\ 23 \overline{) 56,373} \\ \underline{46} \\ 103 \\ \underline{92} \\ 117 \\ \underline{115} \\ 23 \\ \underline{23} \\ 00 \end{array}$$

Draft

3 Divide using different division strategies:

	Division	Area Model	Standard Division Algorithm
1	$10,455 \div 85 = 123$	<div> <div>100</div> <div>20</div> <div>3</div> <div> <div>10,455</div> <div>1,955</div> <div>255</div> </div> <div> <div>85</div> <div>-8,500</div> <div>-1,700</div> <div>-255</div> </div> <div> <div>1,955</div> <div>255</div> <div>000</div> </div> </div>	<div> <div>00123</div> <div>85</div> <div>10,455</div> <div>-85</div> <div>195</div> <div>-170</div> <div>255</div> <div>-255</div> <div>000</div> </div>
2	$3,213 \div 17 = 189$	<div> <div>100</div> <div>80</div> <div>9</div> <div> <div>3,213</div> <div>1,513</div> <div>153</div> </div> <div> <div>17</div> <div>-1,700</div> <div>-1,360</div> <div>-153</div> </div> <div> <div>1,513</div> <div>153</div> <div>000</div> </div> </div>	<div> <div>0189</div> <div>17</div> <div>3,213</div> <div>-17</div> <div>151</div> <div>-138</div> <div>153</div> <div>-153</div> <div>000</div> </div>
3	$50,312 \div 38 = 1,324$	<div> <div>1,000</div> <div>300</div> <div>20</div> <div>4</div> <div> <div>50,312</div> <div>12,312</div> <div>912</div> <div>152</div> </div> <div> <div>38</div> <div>-38,000</div> <div>-11,400</div> <div>-760</div> <div>-152</div> </div> <div> <div>12,312</div> <div>912</div> <div>152</div> <div>000</div> </div> </div>	<div> <div>01324</div> <div>38</div> <div>50,312</div> <div>-38</div> <div>123</div> <div>-114</div> <div>91</div> <div>-76</div> <div>152</div> <div>-152</div> <div>000</div> </div>

4 Complete the following:

- 1 If $35 \times 13 = 455$, then $455 \div 13 =$ **35** .
- 2 If $6,048 \div 24 = 252$, then $24 \times 252 =$ **6,048** .
- 3 If $61 \times 16 = 976$, then $980 \div 61 = 16$ and the remainder is **4** .
- 4 If $2,000 : 54 = 37$, and the remainder is 2, then $37 \times 54 =$ **1,998** .
- 5 The number that if divided by 23 has a quotient of 212 is **4,876** .
- 6 The number that if divided by 34 has a quotient of 102, and the remainder is 11 is **3,479** .
- 7 The number that if multiplied by 12 gives the result 1,260, is **105** .
- 8 $23 \times$ **102** = 2,346
- 9 $2,553 \div$ **111** = 23
- 10 **14,042** $\div 14 = 1,003$

5 Answer the following:

- 1 A bakery made **140** servings of baklava for a party. If each baking tray holds **12** servings of baklava, how many trays will be needed to hold all the baklava?

$$140 \div 12 = 11 \text{ (R8)} \rightarrow 12 \text{ trays are needed}$$

- 2 In one year, a textile factory used **11,650** meters of cotton, **4,950** fewer meters of silk than cotton, and **3,500** fewer meters of wool than silk. How many meters of fabric were used in all?

$$\text{Silk} = 11,650 - 4,950 = 6,700 \text{ m}$$

$$\text{Wool} = 6,700 - 3,500 = 3,200 \text{ m.....}$$

$$\text{Total} = 11,650 + 6,700 + 3,200 = 21,550 \text{ m}$$

- 3 An architect is designing a bridge. The architect has two choices for materials. Mighty Steel sells 5 metric tons (t) of steel for 100,000 LE. Silver Strong Steel sells 3 t of steel for 70,000 LE.

If the architect needs 15 t of steel, how much money will be saved by purchasing from Mighty Steel?

$$\text{Mighty Steel: } 3 \times 100,000 = 300,000 \text{ LE}$$

$$\text{Silver Steel: } 5 \times 70,000 = 350,000 \text{ LE}$$

$$\text{Money saved} = 350,000 - 300,000 = 50,000 \text{ LE}$$

- 4 Zeinab ordered 12 packages of fabric squares to make a quilt. Each package has 18 fabric squares, and Zeinab used all the squares for her quilt. Reem made a quilt that was 13 squares wide by 13 squares long. How many fewer squares did Reem use than Zeinab for her quilt?

$$\text{Zeinab used} = 12 \times 18 = 216 \text{ squares}$$

$$\text{Reem used} = 13 \times 13 = 169 \text{ squares}$$

$$\text{The difference} = 216 - 169 = 47 \text{ squares}$$

- 5 Nagi sold a total of 30 boxes of sports T-shirts at his store on Monday. These boxes contained only basketball T-shirts and football T-shirts. Each box contained 25 sports T-shirts. He earned 3 LE for each sports T-shirt he sold. He earned a total of 1,134 LE from the football T-shirts he sold. How much money did Nagi earn from the basketball T-shirts he sold?

$$\text{Profit: } (30 \times 25) \times 3 = 2,250 \text{ LE}$$

$$\text{Basketball} = 2,250 - 1,134 = 1,116 \text{ LE}$$

Mathematical Operations and Algebraic Thinking

- 6 Malek and his family are going on a road trip to his grandmother's house, which is 465 kilometers away. On Friday, they traveled 124 km. On Saturday, they traveled 210 km. How many kilometers will they need to travel on Sunday to reach his grandmother's house?

$$\text{The distance} = 465 - (124 + 210)$$

$$= 465 - 334 = 131 \text{ km}$$

- 7 If the total price of 25 books is 1,875 pounds, what is the price of 36 books?

$$\text{The price of one book} = 1,875 \div 25 = 75 \text{ pounds}$$

$$\text{The price of 25 books} = 36 \times 75 = 2,700 \text{ pounds}$$

- 8 Hussam bought a car and paid 85,500 pounds as a down payment (part of the price), and the rest of the car's price is paid in 24 equal monthly installments. If the total price of the car is 163,500 pounds, what is the value of each installment?

$$\text{The remaining money} = 163,500 - 85,500 = 78,000 \text{ pounds}$$

$$\text{Value of each installment} = 78,000 \div 24 = 3,250 \text{ pounds}$$

- 9 A school has 456 boys and 419 girls. It is intended to divide boys and girls equally into 25 classes in the school. How many students will be in each class?

$$\text{Total number of students} = 456 + 419 = 875 \text{ students}$$

$$\text{Number of students in each class} = 875 \div 25 = 35 \text{ students}$$

- 10 A rectangular garden with dimensions of 124 meters by 85 meters, divided into rectangular planting basins, each of which is 62 square meters. How many basins are in the garden?

$$\text{The area of land} = 124 \times 85 = 10,540 \text{ square meters}$$

$$\text{The number of basins} = 10,540 \div 62 = 170 \text{ basins}$$

Assessment on Concept 2



First

Choose the correct answer:

- 1 The quotient in the following division model is ... **437** .

- a 5,248
b 12
c 4
d **437**

$$\begin{array}{r} 0437 \\ 12 \overline{) 5,248} \\ \underline{- 48} \\ 44 \\ \underline{- 36} \\ 88 \\ \underline{- 84} \\ 4 \end{array}$$

- 2 The divisor in the following division model is **25** .

- a 4,528
b **25**
c 3
d 181

$$\begin{array}{r} 0181 \\ 25 \overline{) 4,528} \\ \underline{- 25} \\ 202 \\ \underline{- 200} \\ 28 \\ \underline{- 25} \\ 3 \end{array}$$

- 3 The remainder in the following division model is **26** .

- a 954
b 32
c **26**
d 29

$$\begin{array}{r} 029 \\ 32 \overline{) 954} \\ \underline{- 64} \\ 314 \\ \underline{- 288} \\ 26 \end{array}$$

- 4 From the following division model, $802 = 22 \times 36 + 10$

- a **$22 \times 36 + 10$**
b $22 + 36 \times 10$
c $22 \times 36 \times 10$
d $22 + 36 + 10$

$$\begin{array}{r} 036 \\ 22 \overline{) 802} \\ \underline{- 66} \\ 142 \\ \underline{- 132} \\ 10 \end{array}$$

- 5 $24,000 \div 600 =$ **40**

- a 4 b **40** c 400 d 4,000

Second

Complete the following:

- 1 If $4 \times 60 = 240$, then $400 \times 600 =$ **240,000** 2 $450,000 \div$ **500** ... = 900
3 If $24 \times 15 = 360$, then the remainder of $375 \div 15$ is **0** .
4 If $248 \div 12 = 20$ (R 8), then $12 \times 20 +$ **8** = 248. 5 60×300 **18,000** .

Third

Answer the following:

- There are **205** people at a concert. After the concert, **40** people left in cars, the rest of them wanted to go home by a microbus. If the load of each microbus is **11** people, how many minibuses are needed for everyone to get home?

The remaining people = $205 - 40 = 165$ persons
Number of minibuses = $165 \div 11 = 15$ minibuses

Unit 5 Multiplication and Division with Decimals

Concept 5.1 Multiplying Decimals

Lessons 1&2 Multiplying by Powers of Ten Multiplying Decimals by Whole Numbers

1 Find the product of:

$$1) 12 \times 10 = 120$$

$$2) 9 \times 100 = 900$$

$$3) 101 \times 1,000 = 101,000$$

$$4) 65 \times 0.1 = 6.5$$

$$5) 26 \times 0.01 = 0.26$$

$$6) 17 \times 0.001 = 0.017$$

$$7) 0.5 \times 10 = 5$$

$$8) 0.75 \times 100 = 75$$

$$9) 0.256 \times 1,000 = 256$$

$$10) 0.2 \times 0.1 = 0.02$$

$$11) 0.36 \times 0.01 = 0.0036$$

$$12) 0.12 \times 0.001 = 0.00012$$

$$13) 3.25 \times 10 = 32.5$$

$$14) 4.12 \times 100 = 412$$

$$15) 3.19 \times 1,000 = 3,190$$

$$16) 42.12 \times 0.1 = 4.212$$

$$17) 55.12 \times 0.01 = 0.5512$$

$$18) 36.01 \times 0.001 = 0.03601$$

$$19) 0.02 \times 10 = 0.2$$

$$20) 0.36 \times 100 = 36$$

$$21) 0.17 \times 1,000 = 170$$

$$22) 6.35 \times 0.1 = 0.635$$

$$23) 42.14 \times 0.01 = 0.4214$$

$$24) 3.1 \times 0.001 = 0.0031$$

2 Find the product of:

$$1) 25 \times 0.5 = 12.5$$

$$2) 12 \times 0.2 = 2.4$$

$$3) 9 \times 1.35 = 12.15$$

$$4) 12 \times 0.07 = 0.84$$

5] $2.6 \times 0.6 = 1.56$

7] $3.33 \times 5 = 16.65$

9] $253 \times 0.003 = 0.759$

11] $4.5 \times 0.09 = 0.405$

13] $2.4 \times 12 = 28.8$

15] $3.7 \times 22 = 81.4$

17] $4.3 \times 52 = 223.6$

19] $12.4 \times 11 = 136.4$

21] $0.365 \times 23 = 8.395$

23] $3.02 \times 12 = 36.24$

6] $17 \times 0.001 = 0.017$

8] $9.56 \times 9 = 86.04$

10] $0.008 \times 5 = 0.04$

12] $6.35 \times 3 = 19.05$

14] $0.45 \times 13 = 5.85$

16] $27 \times 2.1 = 56.7$

18] $20.5 \times 12 = 246$

20] $45 \times 2.07 = 93.15$

22] $0.15 \times 124 = 18.6$

24] $1.12 \times 36 = 40.32$

3 Complete the following:

1] $\dots\dots\dots 5 \dots\dots \times 10 = 50$

3] $\dots\dots\dots 20 \dots\dots \times 1,000 = 20,000$

5] $\dots\dots\dots 3 \dots\dots \times 0.01 = 0.03$

7] $\dots\dots\dots 0.5 \dots\dots \times 10 = 5$

9] $\dots\dots\dots 0.7 \dots\dots \times 1,000 = 700$

11] $\dots\dots\dots 2.4 \dots\dots \times 0.01 = 0.024$

13] $42 \times \dots\dots\dots 10 \dots\dots = 420$

15] $65 \times \dots\dots\dots 1,000 \dots\dots = 65,000$

17] $6.3 \times \dots\dots\dots 0.01 \dots\dots = 0.063$

19] $0.05 \times \dots\dots\dots 1,000 \dots\dots = 50$

21] $2.05 \times \dots\dots\dots 10 \dots\dots = 20.5$

23] $3.7 \times \dots\dots\dots 1,000 \dots\dots = 3,700$

2] $\dots\dots\dots 33 \dots\dots \times 100 = 3,300$

4] $\dots\dots\dots 7 \dots\dots \times 0.1 = 0.7$

6] $\dots\dots\dots 2 \dots\dots \times 0.001 = 0.002$

8] $\dots\dots\dots 0.5 \dots\dots \times 100 = 50$

10] $\dots\dots\dots 2.4 \dots\dots \times 0.1 = 0.24$

12] $\dots\dots\dots 17 \dots\dots \times 0.001 = 0.017$

14] $23 \times \dots\dots\dots 100 \dots\dots = 2,300$

16] $14 \times \dots\dots\dots 0.1 \dots\dots = 1.4$

18] $32 \times \dots\dots\dots 0.001 \dots\dots = 0.032$

20] $63.7 \times \dots\dots\dots 100 \dots\dots = 6,370$

22] $0.06 \times \dots\dots\dots 0.1 \dots\dots = 0.006$

24] $20 \times \dots\dots\dots 0.001 \dots\dots = 0.02$

4 Compare using (<, = or >):

1 $25 \times 0.1 = 0.25 \times 10$

2 $50 \times 0.01 < 0.5 \times 100$

3 $73.2 \times 0.1 < 0.732 \times 100$

4 $36 \times 0.1 < 3.6 \times 10$

5 $56 \times 11 > 5.6 \times 11$

6 $45 \times 0.12 < 4.5 \times 12$

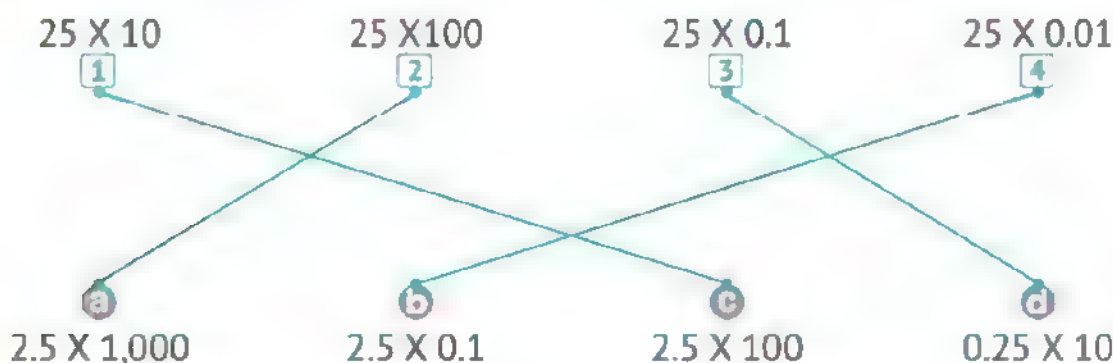
7 $1.44 \times 10 = 1.2 \times 12$

8 $75 \times 0.01 = 0.25 \times 3$

9 $15 \times 0.15 > 2.25 \times 0.1$

10 $9 \times 0.9 > 8.1 \times 0.01$

5 Match:



6 Complete the following:

1 If $6 \times 25 = 150$, then $6 \times 0.25 = 1.5$.

2 If $8 \times 50 = 400$, then $0.8 \times 5 = 4$.

3 If $5 \times 24 = 120$, then $5 \times 2.4 = 12$.

4 If $1.2 \times 25 = 30$, then $12 \times 0.25 = 3$.

5 If $0.24 \times 5 = 1.2$, then $2.4 \times 5 = 12$.

6 When multiplying by 0.01, we move the decimal point **2** places to the **left**.

7 When multiplying by **10**, we move the decimal point one place to the right.

8 When multiplying by **0.001**, we move the decimal point 3 places to the left.

9 When multiplying 2.45×100 , the place value of 4 changes from **0.4** to **40**.

10 $1.5 \times 20 = 30$ 11 $10.5 \times 0.1 = 1.05$ 12 $0.25 \times 800 = 200$

13 $7.5 \times 2 = 15$ 14 $11 \times 1.1 = 12.1$ 15 $0.31 \times 3 = 0.93$

Assessment

1

on Lessons 1 & 2

Unit 5





First: Find the product of:

- 1) $8 \times 100 = \dots 800$
- 2) $3 \times 0.1 = \dots 0.3$
- 3) $45 \times 0.001 = \dots 0.045$
- 4) $3.5 \times 4 = \dots 14$
- 5) $5.25 \times 100 = \dots 525$

Second: Compare using (<, = or >):

- | | | |
|----------------------|---|-------------------|
| 1) 5×0.3 | = | 0.5×3 |
| 2) 24×0.2 | > | 8×0.06 |
| 3) 1.2×100 | > | 0.12×10 |
| 4) 635×0.1 | < | 6.35×100 |
| 5) 825×0.01 | < | 8.25×10 |

Third: Match:

1) 2.35×10		a) 23.5×10
2) 2.35×0.1		b) 23.5×1
3) 2.35×100		c) 23.5×100
4) $2.35 \times 1,000$		d) 23.5×0.01

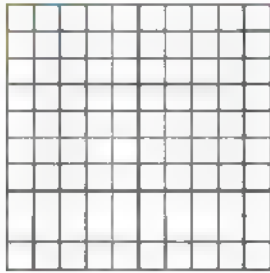
Fourth: Complete the following:

- 1) If $5 \times 24 = 120$, then $5 \times 2.4 = \dots 12$
- 2) If $0.8 \times 421 = 336.8$, then $8 \times 4.21 = \dots 33.68$
- 3) When multiplying a whole number by 0.001, we move the decimal point **3** places to the **left**
- 4) $0.5 \times \dots 0.1 \dots = 0.05$
- 5) $\dots 0.092 \dots \times 100 = 9.2$

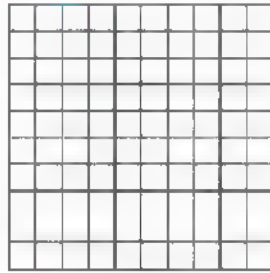
Lessons 3&4 Multiplying Tenths by Tenths Multiplying Using the Area of Rectangle Model

1 Use the Base 10 grids to find the product:

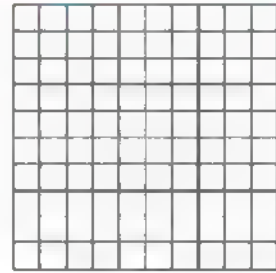
1 $0.2 \times 0.3 = 0.06$



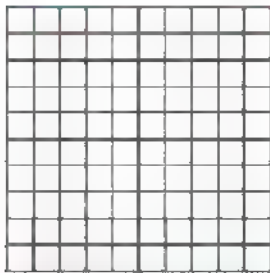
2 $0.4 \times 0.4 = 0.16$



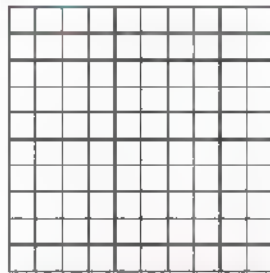
3 $0.6 \times 0.8 = 0.48$



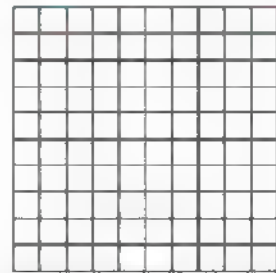
4 $0.7 \times 0.1 = 0.07$



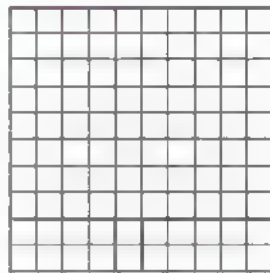
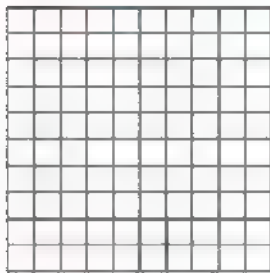
5 $0.3 \times 0.4 = 0.12$



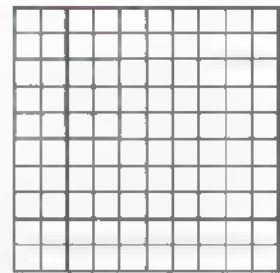
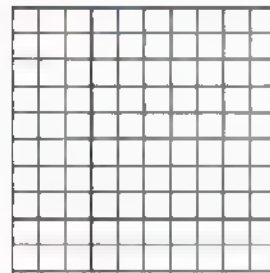
6 $0.5 \times 0.9 = 0.45$



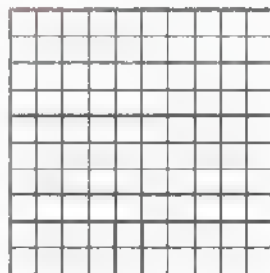
7 $1.4 \times 0.2 = 0.28$



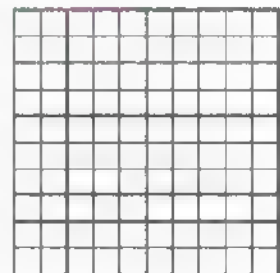
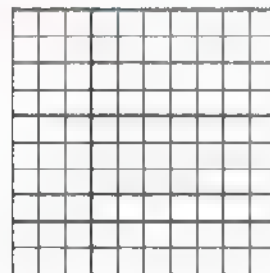
8 $1.5 \times 0.3 = 0.45$



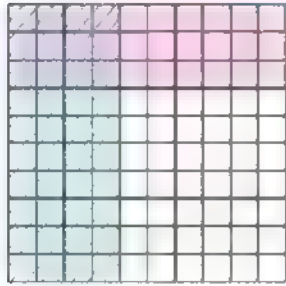
9 $1.1 \times 0.7 = 0.77$



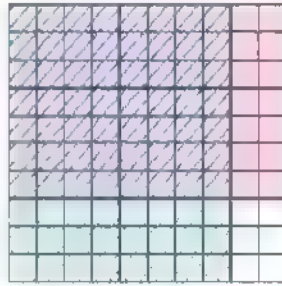
10 $0.3 \times 1.6 = 0.48$



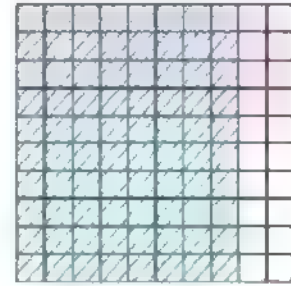
2 Write the multiplication problem represented by each of the following Base 10 grids, then find the result:



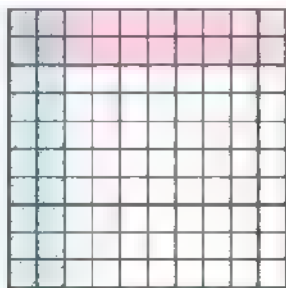
1 $0.3 \times 0.4 = 0.12$



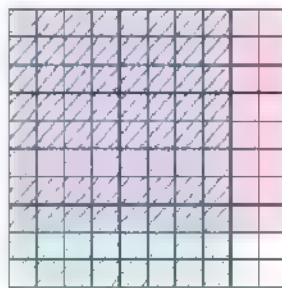
2 $0.7 \times 0.8 = 0.56$



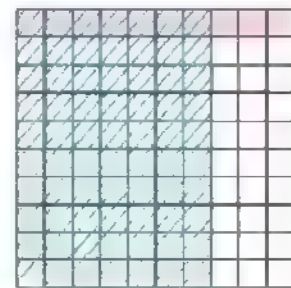
3 $0.4 \times 0.8 = 0.32$



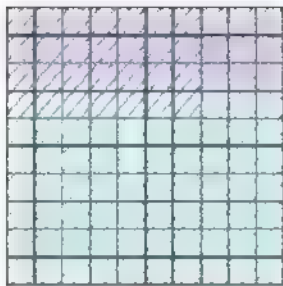
4 $0.2 \times 0.2 = 0.04$



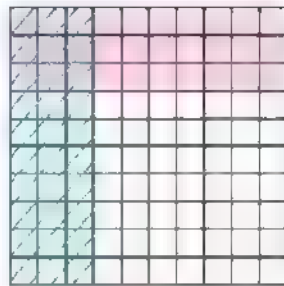
5 $0.8 \times 0.8 = 0.64$



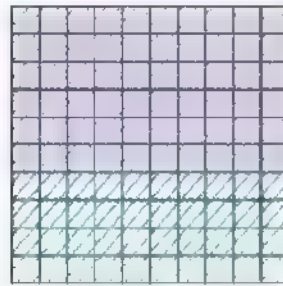
6 $0.1 \times 0.7 = 0.07$



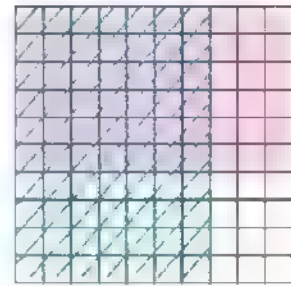
7 $0.3 \times 1.3 = 0.39$



8 $0.6 \times 1.7 = 1.02$



9 $1.1 \times 0.2 = 0.22$



10 $0.3 \times 1.7 = 0.51$

3 Multiply using the area model:

1 0.9×4.2

$$\begin{array}{r} 4 \quad 0.2 \\ 0.9 \quad \boxed{} \boxed{} \\ \hline 3.6 + 0.18 \\ \hline = 3.78 \end{array}$$

2 0.08×4.7

$$\begin{array}{r} 4 \quad 0.7 \\ 0.08 \quad \boxed{} \boxed{} \\ \hline 0.32 + 0.056 \\ \hline = 0.376 \end{array}$$

3 6×20.3

$$\begin{array}{r} 20 \quad 0.3 \\ 6 \quad \boxed{} \boxed{} \\ \hline 120 + 1.8 \\ \hline = 121.8 \end{array}$$

4 0.9×4.2

$$\begin{array}{r} 4 \quad 0.2 \\ 0.9 \quad \boxed{} \boxed{} \\ \hline 3.6 + 0.18 \\ \hline = 3.78 \end{array}$$

5 0.6×3.04

$$\begin{array}{r} 3 \quad 0.04 \\ 0.6 \quad \boxed{} \boxed{} \\ \hline 1.8 + 0.024 \\ \hline = 1.824 \end{array}$$

6 9×20.3

$$\begin{array}{r} 20 \quad 0.3 \\ 9 \quad \boxed{} \boxed{} \\ \hline 180 + 2.7 \\ \hline = 182.7 \end{array}$$

7 0.12×4.5

$$\begin{array}{r} 4 \quad 0.5 \\ 0.1 \quad \boxed{} \boxed{} \\ 0.02 \quad \boxed{} \boxed{} \\ \hline 0.4 + 0.08 + 0.05 + 0.01 \\ \hline = 0.54 \end{array}$$

8 63×0.74

$$\begin{array}{r} 0.7 \quad 0.04 \\ 60 \quad \boxed{} \boxed{} \\ 3 \quad \boxed{} \boxed{} \\ \hline 42 + 2.4 + 2.1 + 0.12 \\ \hline = 46.62 \end{array}$$

9 0.24×2.7

$$\begin{array}{r} 2 \quad 0.7 \\ 0.2 \quad \boxed{} \boxed{} \\ 0.04 \quad \boxed{} \boxed{} \\ \hline 0.4 + 0.14 + 0.08 + 0.028 \\ \hline = 0.648 \end{array}$$

10 4.5×63

$$\begin{array}{r} 60 \quad 3 \quad \\ 4 \quad \boxed{} \boxed{} \\ 0.5 \quad \boxed{} \boxed{} \\ \hline 240 + 12 + 30 + 1.5 \\ \hline = 283.5 \end{array}$$

11 40.5×3.5

$$\begin{array}{r} 3 \quad 0.5 \\ 40 \quad \boxed{} \boxed{} \\ 0.5 \quad \boxed{} \boxed{} \\ \hline 120 + 20 + 1.5 + 0.25 \\ \hline = 141.75 \end{array}$$

12 14×0.207

$$\begin{array}{r} 0.2 \quad 0.007 \\ 10 \quad \boxed{} \boxed{} \\ 4 \quad \boxed{} \boxed{} \\ \hline 2 + 0.07 + 0.8 + 0.028 \\ \hline = 2.898 \end{array}$$

13 3.5×42.4

$$\begin{array}{r} 40 \quad 2 \quad 0.4 \\ 3 \quad \boxed{} \boxed{} \boxed{} \\ 0.5 \quad \boxed{} \boxed{} \boxed{} \\ \hline 120 + 6 + 1.2 + 20 + 1 + 2 \\ \hline = 148.4 \end{array}$$

14 3.7×30.23

$$\begin{array}{r} 30 \quad 0.2 \quad 0.03 \\ 3 \quad \boxed{} \boxed{} \boxed{} \\ 0.7 \quad \boxed{} \boxed{} \boxed{} \\ \hline 90 + 0.6 + 0.09 + 21 + 0.14 + 0.021 \\ \hline = 111.851 \end{array}$$

15 0.14×17.3

	10	7	0.3
0.1			
0.04			

$$1 + 0.7 + 0.03 + 0.4 + 0.28 + 0.012 = 2.422$$

16 3.57×1.7

	3	0.5	0.07
1			
0.7			

$$3 + 0.5 + 0.07 + 2.1 + 0.35 + 0.049 = 6.069$$

4 Write the multiplication problem that expresses the following area models, and then solve them:

1 $0.4 \times 0.52 = 0.208$

	0.5	0.02
0.4		

$$0.2 + 0.008 = 0.208$$

2 $7 \times 2.3 = 16.1$

	2	0.3
7		

$$14 + 2.1 = 16.1$$

3 $0.3 \times 21.4 = 6.42$

	20	1	0.4
0.3			

$$6 + 0.3 + 0.12 = 6.42$$

4 $0.27 \times 4.3 = 1.161$

	4	0.3
0.2		
0.07		

$$0.8 + 0.06 + 0.28 + 0.021 = 1.161$$

5 $3.5 \times 45 = 157.5$

	40	5
3		
0.5		

$$120 + 15 + 20 + 2.5 = 157.5$$

6 $0.92 \times 0.54 = 0.4968$

	0.5	0.04
0.9		
0.02		

$$0.45 + 0.036 + 0.01 + 0.0008 = 0.4968$$

7 $47 \times 0.142 = 6.674$

	0.1	0.04	0.002
40			
7			

$$4 + 1.6 + 0.08 + 0.7 + 0.28 + 0.014 = 6.674$$

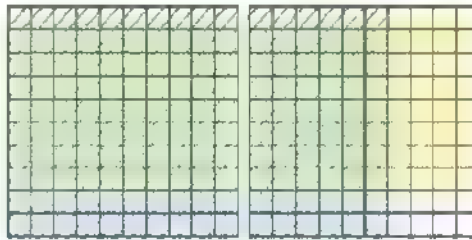
8 $4.7 \times 3.49 = 16.403$

	3	0.4	0.09
4			
0.7			

$$12 + 1.6 + 0.36 + 2.1 + 0.28 + 0.063 = 16.403$$

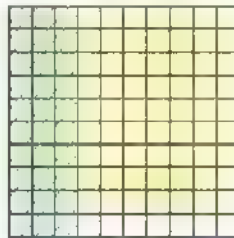
5 Choose the correct answer:

- 1 The multiplication problem that represents the opposite model is .



(16 X 80 or 1.6 X 0.8 or 160 X 80 or 1.6 X 8)

- 2 The multiplication problem that represents the opposite model is .



(3 X 9 or 30 X 0.9 or 30 X 90 or 0.3 X 0.9)

- 3 The multiplication problem that represents the opposite model is .

(50.3 X 7.32 or 5.3 X 7.32 or 5.3 X 73.2 or 50.3 X 73.2)

	7	0.3	0.02
50			
0.3			

- 4 The multiplication problem that represents the opposite model is .

	20	2	0.3
5			
0.07			

(5.7 X 22.3 or 57 X 223 or 5.07 X 202.3 or 5.07 X 22.3)

- 5 If $12 \times 45 = 540$, then X 0.45 = 540

(1.2 or 0.12 or 120 or 1,200)

- 6 If $1.3 \times 7.2 = 9.36$, then $13 \times \dots = 93.6$

(0.72 or 7.2 or 72 or 720)

- 7 35×0.2 3.5×2

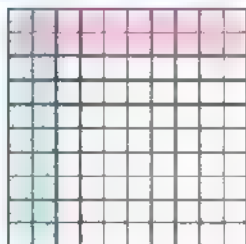
(> or = or < or ≤)

- 8 3.6×0.01 36×10

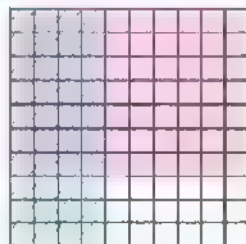
(> or = or < or ≤)

First Write the multiplication problem represented by each of the following **Base 10** grids, then find the product:

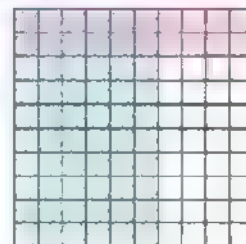
1 $0.2 \times 0.2 = 0.04$



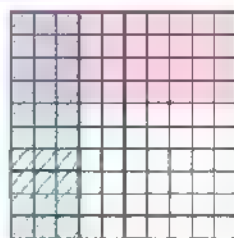
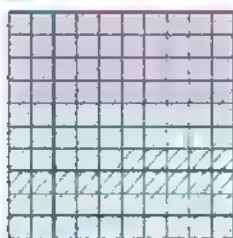
2 $0.4 \times 0.7 = 0.28$



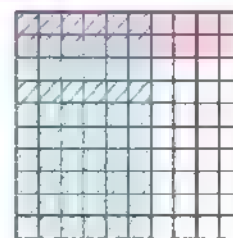
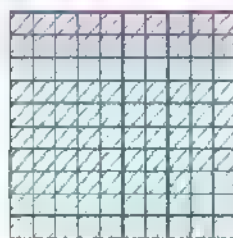
3 $0.6 \times 0.2 = 0.12$



4 $0.4 \times 1.3 = 0.52$



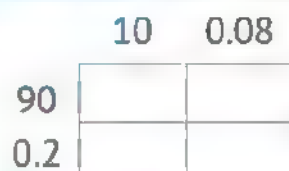
5 $0.2 \times 1.6 = 0.32$



Second Write the multiplication problems that express the following **area models**, and then solve them:



1 $2.9 \times 0.7 = 2.3$



2 $10.08 \times 90.2 = 909.216$



3 $852 \times 0.24 = 204.48$

Third Complete the following:

1 If $2 \times 45 = 90$, then $0.2 \times 0.45 = 0.09$

2 If $5 \times 3 = 15$, then $5 \times 0.3 = 1.5$

3 If $625 \times 4 = 2,500$, then $6.25 \times 0.4 = 2.5$

4 If $2.5 \times 1.6 = 4$, then $25 \times 16 = 400$

Fourth Answer the following:

- Marwa is a museum curator. She wants to repaint the museum walls, which are measured in meters. There are **four** walls, each is measuring $3.8 \text{ m} \times 15.2 \text{ m}$. Estimate how many square meters she needs to cover with paint. Explain your answer.

The area of one wall = $15 \times 4 = 60$ square meter

The painted area = $60 \times 4 = 240$ square meter

Lessons 5&6

Multiplying Decimals Through the Hundredths Place-Multiplying Decimals Through the Thousandths Place

1 Multiply (35×12) using the **standard algorithm**, then complete:

1 $3.5 \times 12 = \underline{\quad 42 \quad}$

2 $35 \times 0.12 = \underline{\quad 4.2 \quad}$

3 $3.5 \times 1.2 = \underline{\quad 4.2 \quad}$

4 $0.35 \times 1.2 = \underline{\quad 0.42 \quad}$

5 $3.5 \times 0.12 = \underline{\quad 0.42 \quad}$

6 $0.35 \times 12 = \underline{\quad 4.2 \quad}$

7 $35 \times 1.2 = \underline{\quad 42 \quad}$

8 $0.35 \times 0.12 = \underline{\quad 0.042 \quad}$

$$\begin{array}{r} 35 \\ \times 12 \\ \hline 70 \\ + 350 \\ \hline 420 \end{array}$$

2 Multiply (105×24) using the **standard algorithm**, then complete:

1 $105 \times 2.4 = \underline{\quad 252 \quad}$

2 $1.05 \times 24 = \underline{\quad 25.2 \quad}$

3 $105 \times 0.24 = \underline{\quad 25.2 \quad}$

4 $0.105 \times 24 = \underline{\quad 2.52 \quad}$

5 $105 \times 0.024 = \underline{\quad 2.52 \quad}$

6 $10.5 \times 2.4 = \underline{\quad 25.2 \quad}$

7 $10.5 \times 24 = \underline{\quad 252 \quad}$

8 $1.05 \times 0.24 = \underline{\quad 0.252 \quad}$

$$\begin{array}{r} 105 \\ \times 24 \\ \hline 420 \\ + 2100 \\ \hline 2520 \end{array}$$

3 Multiply using the **standard algorithm**:

1
$$\begin{array}{r} 36 \\ \times 0.7 \\ \hline 25.2 \end{array}$$

2
$$\begin{array}{r} 0.368 \\ \times 5 \\ \hline 1.84 \end{array}$$

3
$$\begin{array}{r} 6.07 \\ \times 9 \\ \hline 54.63 \end{array}$$

4
$$\begin{array}{r} 115.2 \\ \times 0.06 \\ \hline 6.912 \end{array}$$

5
$$\begin{array}{r} 4.57 \\ \times 5.9 \\ \hline 4,113 \\ 22,850 \\ \hline 26.963 \end{array}$$

6
$$\begin{array}{r} 3.336 \\ \times 21 \\ \hline 3,336 \\ 66,720 \\ \hline 70.056 \end{array}$$

7
$$\begin{array}{r} 37.07 \\ \times 13 \\ \hline 11,121 \\ 37,070 \\ \hline 481.91 \end{array}$$

8
$$\begin{array}{r} 12.25 \\ \times 3.5 \\ \hline 6,125 \\ 36,750 \\ \hline 42.875 \end{array}$$

9
$$\begin{array}{r} 6.35 \\ \times 1.7 \\ \hline 4,445 \\ + 6,350 \\ \hline 10.795 \end{array}$$

10
$$\begin{array}{r} 3,021 \\ \times 0.032 \\ \hline 6,021 \\ 90,630 \\ \hline 96.672 \end{array}$$

11
$$\begin{array}{r} 20.02 \\ \times 3.6 \\ \hline 12,012 \\ 60,060 \\ \hline 72.072 \end{array}$$

12
$$\begin{array}{r} 3.27 \\ \times 24 \\ \hline 1,308 \\ + 6,540 \\ \hline 78.48 \end{array}$$

4 Compare using (<, = or >):

1 $2.8 \times 3.4 = 0.28 \times 34$

2 $6.3 \times 12 > 0.63 \times 12$

3 $6.4 \times 0.37 < 64 \times 3.7$

4 $2.2 \times 2.2 = 0.22 \times 22$

5 $4.5 \times 0.2 < 45 \times 20$

6 $6.34 \times 32 = 63.4 \times 3.2$

7 $0.45 \times 0.1 < 4.5 \times 10$

8 $67 \times 10.2 > 67 \times 1.2$

9 $0.5 \times 0.8 > 0.2 \times 0.2$

10 $3.2 \times 3.2 < 0.32 \times 320$

5 Answer the following:

- 1 Nada bought 26 meters of fabric. If the price of one meter was 43.5 pounds, how many pounds did Nada pay?

Nada paid = $26 \times 43.5 = 1,131$ pounds

- 2 Khaled bought 9.5 liters of juice with the price of 12.7 pounds per liter. How many pounds did Khaled pay?

Khaled paid = $9.5 \times 12.7 = 120.65$ pounds

- 3 If a pizza costs 22.25 LE, how much does 12 pizzas of the same kind cost?

The price = $12 \times 22.25 = 267$ LE

- 4 A merchant bought two types of cloth, one at a price of 92.5 pounds per square meter, and the other at a price of 58 pounds per square meter. If he bought 10 meters of the first type and 6.5 meters of the second type, how many pounds did the merchant pay?

$10 \times 92.5 = 925$ pounds, $6.5 \times 58 = 377$ pounds

The merchant paid = $925 + 377 = 1,302$ pounds

- 5 Malik walked 7.9 km on Friday and 3.6 km on Saturday, then Malik repeated that every weekend for 6 weeks. How many total kilometers did Malek walk in 6 weeks?

$7.9 + 3.6 = 11.5$ km

$11.5 \times 6 = 69$ km

First Complete the following:

- 1 If $25 \times 33 = 825$, then $0.25 \times 3.3 =$ **0.825** .
- 2 If $137 \times 21 = 2,877$, then $1.37 \times$ **2.1** $= 2.877$
- 3 $0.02 \times 0.03 =$ **0.0006**
- 4 $0.3 \times$ **0.03** $= 0.009$
- 5 $0.2 \times 0.3 \times 0.5 =$ **0.03**

Second Use the **standard algorithm** to multiply:

- | | | |
|--|---|--|
| <p>1</p> $ \begin{array}{r} 5.6 \\ \times 2.3 \\ \hline 168 \\ + 1120 \\ \hline 12.88 \approx 12.9 \end{array} $ <p>(To the nearest Tenth)</p> | <p>2</p> $ \begin{array}{r} 0.73 \\ \times 2.8 \\ \hline 584 \\ + 1460 \\ \hline 2.044 \approx 2.04 \end{array} $ <p>(To the nearest Hundredth)</p> | <p>3</p> $ \begin{array}{r} 2.08 \\ \times 62 \\ \hline 416 \\ + 12480 \\ \hline 128.96 \approx 129 \end{array} $ <p>(To the nearest whole number)</p> |
|--|---|--|

Third If $452 \times 27 = 12,204$, then:

- | | |
|---|---|
| 1 $4.52 \times 2.7 = $ 12.204 . | 2 $0.452 \times 27 = $ 12.204 . |
| 3 $45.2 \times 27 = $ 1220.4 . | 4 $4.52 \times 2.7 = $ 12.204 . |
| 5 $4.52 \times 0.27 = $ 1.2204 . | 6 $0.452 \times 0.27 = $ 0.12204 . |

Fourth Compare using (**<**, **=** or **>**):

- | | |
|---|--|
| 1 $0.8 \times 0.3 $ > 0.8×0.03 | 2 $54 \times 1.1 $ > 0.54×11 |
| 3 $0.45 \times 10 $ = 45×0.1 | 4 $2.5 \times 2.5 $ < 625×0.1 |

LESSONS 7-9

Decimals and the Metric System Measurement, Decimals, and Powers of Ten Solving Multistep Story Problems

1 Complete:

1 8,523 mL = **8,523** X **0.001** = **8.523** liters

2 954 mL = **954** X **0.001** = **0.954** liters

3 25 mL = **25** X **0.001** = **0.025** liters

4 78 liters = **78** X **1,000** = **78,000** mL

5 2.5 liters = **2.5** X **1,000** = **2,500** mL

6 1.24 liters = **1.24** X **1,000** = **1,240** mL

7 23 km = **23** X **1,000** = **23,000** meters

8 0.753 km = **0.753** X **1,000** = **753** meters

9 235 m = **235** X **0.001** = **0.235** km

10 3,235 m = **3,235** X **0.001** = **3.235** km

11 32 m = **32** X **100** = **3,200** cm

12 3.35 m = **3.35** X **100** = **335** cm

13 0.12 m = **0.12** X **10** = **1.2** dm

14 45 cm = **45** X **0.01** = **0.45** m

15 1,247 cm = **1,247** X **0.01** = **12.47** m

16 7.5 dm = **7.5** X **10** = **75** cm

17 7.5 kg = **7.5** X **1,000** = **7,500** g

18 85 g = **85** X **0.001** = **0.085** kg

19 235 mm = **235** X **0.1** = **23.5** cm

20 2.8 cm = **2.8** X **10** = **28** mm

2 Choose the correct answer:

- 1 6.52 kg = **6,520** g (65.2 or 652 or **6,520** or 65,200)
- 2 549 g = **0.549** kg (5,490 or 5.49 or 54.9 or **0.549**)
- 3 62 mL = **0.062** L (620 or 6.2 or 0.62 or **0.062**)
- 4 63.5 liters = ... **63,500** mL (635 or 6,350 or **63,500** or 635,000)
- 5 45 cm = **0.45** meters (4,500 or 450 or 4.5 or **0.45**)
- 6 0.028 meters = ... **2.8** ... cm (0.28 or **2.8** or 28 or 280)
- 7 3.2 km = **3,200** m (32 or 0.32 or **3,200** or 0.032)
- 8 45 meters = **0.045** km (**0.045** or 4,500 or 4.5 or 450)
- 9 4.5 cm = **45** mm (**45** or 0.45 or 450 or 0.045)
- 10 256 mm = **25.6** cm (0.256 or 2.56 or **25.6** or 2,560)

3 Compare using (<, = or >):

- | | |
|-------------------------|------------------------|
| 1 45 kg > 4,500 g | 2 3.25 cm = 32.5 mm |
| 3 2.5 meters < 2,500 cm | 4 63 liters > 0.063 mL |
| 5 5,000 m > 0.5 km | 6 0.02 km > 2,000 mm |
| 7 11.5 L < 15.1 L | 8 50 cm > 5 mm |
| 9 600 m < 6 km | 10 0.025 kg > 2.5 g |

4 Put (✓) in front of the correct statement, and (✗) in front of the wrong statement:

- | | |
|-----------------------------|----------------------------|
| 1 78 kg = 7,800 g (✗) | 2 3.5 m = 350 cm (✓) |
| 3 200 mL = 0.2 liters (✓) | 4 63 km = 0.063 g (✗) |
| 5 12.5 meters = 1.25 dm (✗) | 6 1 cm = 0.1 mm (✗) |
| 7 1 cm = 0.01 meters (✓) | 8 25 mL = 0.025 liters (✓) |
| 9 10.2 mm = 1.02 cm (✓) | 10 45.3 L = 0.453 mL (✗) |

5 Answer the following:

- 1 Eman wants to know how much her height increased.

In January, she was 1.34 m tall, and at the end of the year she was 145 cm tall. How many centimeters did Eman increase in height?

$$\text{The increase} = 145 - 134 = 11 \text{ cm}$$

- 2 Hazem bought 7 books, the price of one book is 23.5 pounds. Find what Hazem paid.

$$\text{Hazem paid} = 7 \times 23.5 = 164.5 \text{ pounds}$$

- 3 A fruit merchant has 5 boxes of mangoes, each weighing 9.5 kg and 3 boxes of peaches, each weighing 4,600 grams.

What is the total weights of the fruits that the trader has?

$$\text{Weight of mangoes} = 5 \times 9,500 = 47,500 \text{ grams}$$

$$\text{Weight of peaches} = 3 \times 4,600 = 13,800 \text{ grams}$$

$$\text{Total} = 47,500 + 13,800 = 61,300 \text{ grams}$$

- 4 If Mazen is 1.64 meters tall and Maryam is 145 centimeters tall.

Find the sum of their heights and the difference between them in cm.

$$\text{The sum} = 145 + 164 = 309 \text{ cm}$$

$$\text{The difference} = 164 - 145 = 19 \text{ cm}$$

- 5 Sami drinks 4 liters of water daily. If he drinks 1.25 liters of water in the morning, and 2,450 milliliters of water in the afternoon, how many liters of water will he drink in the evening?

$$1,250 + 2,450 = 3,700 \text{ mL}$$

$$4,000 - 3,700 = 300 \text{ mL}$$

First Choose the correct answer:

1 $78.5 \text{ m} = \dots 7,850 \dots \text{ cm}$

☐ a 785

☐ b 7.85

☒ c 7,850

☐ d 0.785

2 $\dots 0.46 \dots \text{ kg} = 460 \text{ g}$

☒ a 0.46

☐ b 460,000

☐ c 4.60

☐ d 4,600

3 $5.2 \text{ L} = 5,200 \text{ mL}$

☐ a 0.052

☐ b 0.52

☐ c 52

☒ d 5,200

4 $2.56 \times \dots 10 \dots = 25.6$

☒ a 10

☐ b 100

☐ c 0.1

☐ d 0.01

5 $0.01 \times \dots 2.5 \dots = 0.025$

☐ a 0.25

☒ b 2.5

☐ c 25

☐ d 250

Second Complete the following:

1 $456 \text{ cm} = \dots 456 \dots \times \dots 0.01 \dots = \dots 4.56 \dots \text{ m}$

2 $5.9 \text{ kg} = \dots 5.9 \dots \times \dots 1,000 \dots = \dots 5,900 \dots \text{ g}$

3 $4,258 \text{ cm} = 4,258 \times 0.01 = 42.58 \text{ m}$ 4 $0.001 \times 85 = 0.085$

Third Compare using (<, = or >):

1 $45 \text{ kg} > 4,500 \text{ g}$

2 $5.02 \text{ L} = 5,020 \text{ mL}$

3 $75 \text{ dm} < 750 \text{ m}$

4 $25 \times 0.01 < 0.25 \times 100$

Fourth Answer the following:

Ali's cat weighs 7 kilograms and his dog weighs 17 kilograms. When Ali took them to the vet, he knew that his cat had gained 0.45 kilograms and his dog had gained 0.12 kilograms. What is the total weight of the two pets now?

The cat: $7 + 0.45 = 7.45 \text{ kg}$

The dog: $17 + 0.12 = 17.12 \text{ kg}$

Total = $7.45 + 17.12 = 24.57 \text{ kg}$

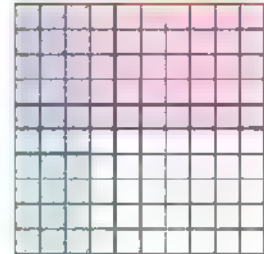
Assessment on Concept 1



First Choose the correct answer:

- 1 The multiplication problem that expresses the corresponding model is **0.3×0.5**

a 0.12×0.35 **b** 1.2×3.5
c 0.3×0.5 **d** 30×50



- 2 The area model that expresses 2.5×0.35 is

a

20	5
30	
5	

b

2	0.5
0.3	
0.05	

c

20	0.5
3	
0.5	

d

2	0.5
0.3	
0.5	

- 3 If $25 \times 16 = 400$, then $2.5 \times 1.6 = \dots$ **4**

a 0.04 **b** 0.4 **c** 4 **d** 40

- 4 0.48 liter = .. **480** .. milliliter(s).

a 0.048 **b** 4.8 **c** 48 **d** 480

- 5 3 Tenths \times 8 Hundredths = **0.024**

a 0.024 **b** 0.24 **c** 24 **d** 240

Complete the following:

- 1 $86 \times 0.001 = 0.086$ 2 If $24 \times 12 = 288$, then $2.4 \times 0.012 = 0.0288$
 3 $25.7 \times 9.8 \rightarrow$ Estimate **26** \times **10** = **260** (To the nearest whole number)
 4 $4,258 \text{ g} = 4,258 \times 0.001 = 4.258 \text{ kg}$ 5 $0.7 \times 0.8 \times 0.5 = 0.28$

Compare using (<, = or >):

- 1 $0.2 \times 0.01 < 0.4 \times 0.05$ 2 $6.2 \times 100 > 0.062 \times 10$
 3 $75 \text{ cm} < 750 \text{ m}$ 4 $1.2 \times 3.5 < 0.12 \times 350$

Answer the following:

- 1 The length of the route taken by the river bus is **58.7** km. How many kilometers would the river bus travel if it traveled this route **9** times a day?

The distance = $58.7 \times 9 = 528.3 \text{ km}$

- 2 Souad bought **20** meters of fabric. If the price of one meter is **65.5** pounds, what is the price of the whole fabric?

The price = $20 \times 65.5 = 1,310 \text{ pounds}$

Concept 5.2 Dividing Decimals

LESSONS 10&11 Dividing by Powers of Ten Patterns and Relationships in Powers of Ten

1 Divide:

- | | |
|---|---|
| 1 $17 \div 10 = \underline{\hspace{1cm}} \mathbf{1.7} \underline{\hspace{1cm}}$ | 2 $8 \div 100 = \underline{\hspace{1cm}} \mathbf{0.08}$ |
| 3 $102 \div 1,000 = \underline{\hspace{1cm}} \mathbf{0.102} \underline{\hspace{1cm}}$ | 4 $45 \div 0.1 = \underline{\hspace{1cm}} \mathbf{450}$ |
| 5 $23 \div 0.01 = \underline{\hspace{1cm}} \mathbf{2,300}$ | 6 $45 \div 0.001 = \underline{\hspace{1cm}} \mathbf{45,000}$ |
| 7 $0.6 \div 10 = \underline{\hspace{1cm}} \mathbf{0.06} \underline{\hspace{1cm}}$ | 8 $0.12 \div 100 = \underline{\hspace{1cm}} \mathbf{0.0012}$ |
| 9 $125 \div 1,000 = \underline{\hspace{1cm}} \mathbf{0.125} \underline{\hspace{1cm}}$ | 10 $0.9 \div 0.1 = \underline{\hspace{1cm}} \mathbf{9}$ |
| 11 $0.27 \div 0.01 = \underline{\hspace{1cm}} \mathbf{27} \underline{\hspace{1cm}}$ | 12 $0.42 \div 0.001 = \underline{\hspace{1cm}} \mathbf{420}$ |
| 13 $4.24 \div 10 = \underline{\hspace{1cm}} \mathbf{0.424}$ | 14 $8.13 \div 100 = \underline{\hspace{1cm}} \mathbf{0.0813}$ |
| 15 $4.17 \div 10 = \underline{\hspace{1cm}} \mathbf{0.417} \underline{\hspace{1cm}}$ | 16 $61.75 \div 0.1 = \underline{\hspace{1cm}} \mathbf{617.5}$ |
| 17 $45.72 \div 0.01 = \underline{\hspace{1cm}} \mathbf{4,572}$ | 18 $27.04 \div 0.001 = \underline{\hspace{1cm}} \mathbf{27,040}$ |
| 19 $0.07 \div 10 = \underline{\hspace{1cm}} \mathbf{0.007}$ | 20 $0.96 \div 100 = \underline{\hspace{1cm}} \mathbf{0.0096}$ |
| 21 $34 \div 1,000 = \underline{\hspace{1cm}} \mathbf{0.034} \underline{\hspace{1cm}}$ | 22 $5.63 \div 0.1 = \underline{\hspace{1cm}} \mathbf{56.3}$ |
| 23 $63.75 \div 0.01 = \underline{\hspace{1cm}} \mathbf{6,375}$ | 24 $4.2 \div 0.001 = \underline{\hspace{1cm}} \mathbf{4,200}$ |
| 25 $6.35 \times 0.1 = \underline{\hspace{1cm}} \mathbf{0.635}$ | 26 $42.14 \times 0.01 = \underline{\hspace{1cm}} \mathbf{0.4214}$ |
| 27 $31 \times 0.001 = \underline{\hspace{1cm}} \mathbf{0.031}$ | |

2 Complete the following:

- | | |
|--|--|
| 1 $\underline{\hspace{1cm}} \mathbf{8} \underline{\hspace{1cm}} \div 10 = 0.8$ | 2 $\underline{\hspace{1cm}} \mathbf{632} \underline{\hspace{1cm}} \div 100 = 6.32$ |
| 3 $\mathbf{20,000} \div 1,000 = 20$ | 4 $\underline{\hspace{1cm}} \mathbf{6} \underline{\hspace{1cm}} \div 0.1 = 60$ |
| 5 $\mathbf{4} \div 0.01 = 400$ | 6 $\mathbf{0.3} \div 0.001 = 300$ |
| 7 $\underline{\hspace{1cm}} \mathbf{3} \underline{\hspace{1cm}} \div 10 = 0.3$ | 8 $\underline{\hspace{1cm}} \mathbf{7} \underline{\hspace{1cm}} \div 100 = 0.07$ |

9 9 $\div 1,000 = 0.009$

10 0.24 $\div 0.1 = 2.4$

11 0.025 $\div 0.01 = 2.5$

12 0.96 $\div 0.001 = 960$

13 0.25 $\div 0.01 = 25$

14 0.58 $\div 0.01 = 58$

15 75 $\div 0.001 = 75,000$

16 23 $\div 10 = 2.3$

17 7.5 $\div 100 = 0.075$

18 37 $\div 1,000 = 0.037$

19 0.07 $\div 0.001 = 70$

20 45.2 $\div 0.01 = 4,520$

21 3.06 $\div 0.1 = 30.6$

22 0.03 $\div 10 = 0.003$

23 3.9 $\div 0.001 = 3,900$

24 50 $\div 1,000 = 0.05$

3 Complete the following patterns:

1 $12.5 \div 0.1 = 12.5 \times 10 = 125$ | 2 $600 \div 1,000 = 600 \times 0.001 = 0.6$

3 $225 \div 10 = 225 \times 0.1 = 22.5$ | 4 $225 \div 100 = 225 \times 0.01 = 2.25$

5 $3.01 \div 0.01 = 3.01 \times 100 = 301$ | 6 $1 \div 10 = 1 \times 0.1 = 0.1$

7 $6 \div 100 = 6 \times 0.01 = 0.06$ | 8 $0.02 \div 0.1 = 0.02 \times 10 = 0.2$

9 $0.05 \div 0.001 = 0.05 \times 1,000 = 50$ | 10 $0.005 \div 0.001 = 0.005 \times 1,000 = 5$

11 $12 \div 1,000 = 12 \times 0.001 = 0.012$ | 12 $32 \div 0.001 = 32 \times 1,000 = 32,000$

4 Match:

1 18×0.1

2 18×0.01

3 18×0.001

4 18×10

5 18×100

a $18 \div 1,000$

b $18 \div 10$

c $18 \div 100$

d $18 \div 0.01$

e $18 \div 0.1$

5 Compare using (<, = or >):

1 $2.5 \times 10 < 25 \div 0.01$

2 $0.1 \times 100 > 10 \div 100$

3 $30 \times 100 = 3 \div 0.001$

4 $125 \div 10 < 12.5 \times 10$

5 $15 \times 0.01 = 1.5 \div 10$

6 $721 \times 0.1 = 721 \div 10$

7 $18.8 \div 10 < 188 \div 0.1$

8 $225 \times 0.1 > 0.225 \div 0.1$

9 $20.02 \div 10 > 2.2 \div 10$

10 $20 \times 0.5 = 1 \div 0.1$

6 Complete each conversion. Then, write a multiplication equation and a division equation with the same answer:

1 $65 \text{ kg} = 65,000 \text{ g}$
 $65 \times 1,000 = 65,000$
 $65 \div 0.001 = 65,000$

2 $2.5 \text{ m} = 250 \text{ cm}$
 $2.5 \times 100 = 250$
 $2.5 \div 0.01 = 250$

3 $5 \text{ liters} = 5,000 \text{ mL}$
 $5 \times 1,000 = 5,000$
 $5 \div 0.001 = 5,000$

4 $923 \text{ meters} = 0.923 \text{ km}$
 $923 \times 0.001 = 0.923$
 $923 \div 1,000 = 0.923$

5 $23 \text{ km} = 23,000 \text{ m}$
 $23 \times 1,000 = 23,000$
 $23 \div 0.001 = 23,000$

6 $25 \text{ mm} = 2.5 \text{ cm}$
 $25 \times 0.1 = 2.5$
 $25 \div 10 = 2.5$

7 $225 \text{ mL} = 0.225 \text{ liter}$
 $225 \times 0.001 = 0.225$
 $225 \div 1,000 = 0.225$

8 $200 \text{ gm} = 0.2 \text{ kg}$
 $200 \times 0.001 = 0.2$
 $200 \div 1,000 = 0.2$

9 $2.5 \text{ cm} = 25 \text{ mm}$
 $2.5 \times 10 = 25$
 $2.5 \div 0.1 = 25$

10 $42 \text{ dm} = 420 \text{ cm}$
 $42 \times 10 = 420$
 $42 \div 0.1 = 420$

First Complete the following:

- 1 $45 \times 0.01 =$ **0.45**
- 2 $25 \div 1,000 =$ **0.025**
- 3 $12.5 \times 100 =$ **1,250**
- 4 $5.74 \div 0.1 =$ **57.4**
- 5 **0.56** $\times 10 = 5.6$
- 6 **20** $\div 100 = 0.2$
- 7 $7.8 \times$ **0.1** $= 0.78$
- 8 $85.9 \div$ **0.01** $= 8,590$
- 9 $78.5 \times 0.1 =$ **785** $\div 100$
- 10 $5.6 \times$ **1,000** $= 56 \div 0.01$

Second Complete each conversion. Then, write a multiplication equation and a division equation with the same answer:

- | | | |
|---|--|--|
| 1 $137 \text{ cm} =$ 1.37 m | 2 $86 \text{ kg} =$ 86,000 g | 3 $8,102 \text{ mL} =$ 8.102 L |
| $137 \times 0.01 =$ 1.37 | $86 \times 1,000 =$ 86,000 | $8,102 \times 0.001 =$ 8.102 |
| $137 \div 100 =$ 1.37 | $86 \div 0.001 =$ 86,000 | $8,102 \div 1,000 =$ 8.102 |

Third Compare using ($<$, $=$ or $>$):

- 1 $856 \div 100$ **=** 856×0.01
- 2 5.64×100 **<** $5.64 \div 0.001$
- 3 $200 \div 1,000$ **<** 200×0.01
- 4 12×0.01 **<** $12 \div 0.01$

Lessons 12&13 Dividing Decimals by Whole Numbers Dividing Decimals by Decimals

1 Use the standard algorithm to divide:

1 026.2

$$\begin{array}{r} 6 \overline{) 157.2} \\ - 12 \\ \hline 37 \\ - 36 \\ \hline 12 \\ - 12 \\ \hline 00 \end{array}$$

2 029.55

$$\begin{array}{r} 8 \overline{) 23.64} \\ - 16 \\ \hline 76 \\ - 72 \\ \hline 44 \\ - 40 \\ \hline 40 \\ - 40 \\ \hline 00 \end{array}$$

3 0.947

$$\begin{array}{r} 5 \overline{) 4.735} \\ - 45 \\ \hline 23 \\ - 20 \\ \hline 35 \\ - 35 \\ \hline 00 \end{array}$$

4 06.37

$$\begin{array}{r} 4 \overline{) 25.48} \\ - 24 \\ \hline 14 \\ - 12 \\ \hline 28 \\ - 28 \\ \hline 00 \end{array}$$

5 0.014

$$\begin{array}{r} 23 \overline{) 0.322} \\ - 23 \\ \hline 92 \\ - 92 \\ \hline 00 \end{array}$$

Draft

6 00.63

$$\begin{array}{r} 54 \overline{) 34.02} \\ - 324 \\ \hline 162 \\ - 162 \\ \hline 000 \end{array}$$

Draft

7 024.3

$$\begin{array}{r} 24 \overline{) 583.2} \\ - 48 \\ \hline 103 \\ - 96 \\ \hline 72 \\ - 72 \\ \hline 00 \end{array}$$

Draft

8 04.03

$$\begin{array}{r} 12 \overline{) 48.36} \\ - 48 \\ \hline 36 \\ - 36 \\ \hline 00 \end{array}$$

Draft

2 Use the standard algorithm to divide:

1 0.35

$$\begin{array}{r} 8 \overline{) 2.8} \\ - 24 \\ \hline 40 \\ - 40 \\ \hline 00 \end{array}$$

2 2.615

$$\begin{array}{r} 2 \overline{) 5.23} \\ - 4 \\ \hline 12 \\ - 12 \\ \hline 3 \\ - 2 \\ \hline 10 \\ - 10 \\ \hline 00 \end{array}$$

3 0.805

$$\begin{array}{r} 4 \overline{) 3.22} \\ - 32 \\ \hline 0020 \\ - 20 \\ \hline 00 \end{array}$$

4 05.04

$$\begin{array}{r} 5 \overline{) 25.2} \\ - 25 \\ \hline 20 \\ - 20 \\ \hline 00 \end{array}$$

5 06.25

$$\begin{array}{r} 4 \overline{) 25} \\ - 24 \\ \hline 10 \\ - 8 \\ \hline 20 \\ - 20 \\ \hline 00 \end{array}$$

6 05.5

$$\begin{array}{r} 6 \overline{) 33} \\ - 30 \\ \hline 30 \\ - 30 \\ \hline 00 \end{array}$$

7 01.14

$$\begin{array}{r} 25 \overline{) 28.5} \\ - 25 \\ \hline 35 \\ - 25 \\ \hline 100 \\ - 100 \\ \hline 000 \end{array}$$

Draft

8 02.52

$$\begin{array}{r} 15 \overline{) 37.8} \\ - 30 \\ \hline 78 \\ - 75 \\ \hline 30 \\ - 30 \\ \hline 00 \end{array}$$

Draft

9 01.5

$$\begin{array}{r} 16 \overline{) 24} \\ - 16 \\ \hline 80 \\ - 80 \\ \hline 00 \end{array}$$

Draft

3 Use the standard algorithm to divide:

1 $45.24 \div 0.4 = 113.1$

$$\begin{array}{r} 113.1 \\ 4 \overline{) 452.4} \\ \underline{4} \\ 05 \\ \underline{04} \\ 12 \\ \underline{12} \\ 004 \\ \underline{04} \\ 0 \end{array}$$

2 $36.7 \div 0.05 = 734$

$$\begin{array}{r} 734 \\ 5 \overline{) 3670} \\ \underline{35} \\ 17 \\ \underline{15} \\ 20 \\ \underline{20} \\ 00 \end{array}$$

3 $1.242 \div 0.006 = 207$

$$\begin{array}{r} 207 \\ 6 \overline{) 1242} \\ \underline{12} \\ 0042 \\ \underline{0042} \\ 00 \end{array}$$

4 $1.536 \div 0.6 = 2.56$

$$\begin{array}{r} 2.56 \\ 6 \overline{) 15.36} \\ \underline{12} \\ 33 \\ \underline{30} \\ 36 \\ \underline{36} \\ 00 \end{array}$$

5 $245 \div 0.7 = 350$

$$\begin{array}{r} 350 \\ 7 \overline{) 2450} \\ \underline{21} \\ 35 \\ \underline{35} \\ 00 \end{array}$$

6 $934 \div 0.8 = 1,167.5$

$$\begin{array}{r} 1167.5 \\ 8 \overline{) 9340} \\ \underline{8} \\ 13 \\ \underline{8} \\ 54 \\ \underline{48} \\ 60 \\ \underline{56} \\ 40 \\ \underline{40} \\ 00 \end{array}$$

7 $65.65 \div 0.13 = 505$

$$\begin{array}{r} 505 \\ 13 \overline{) 6565} \\ \underline{65} \\ 0065 \\ \underline{0065} \\ 00 \end{array}$$

8 $1.44 \div 1.2 = 1.2$

$$\begin{array}{r} 1.2 \\ 12 \overline{) 14.4} \\ \underline{12} \\ 024 \\ \underline{024} \\ 00 \end{array}$$

9 $45.6 \div 0.15 = 304$

$$\begin{array}{r} 304 \\ 15 \overline{) 4560} \\ \underline{45} \\ 0060 \\ \underline{0060} \\ 00 \end{array}$$

10 $24.7 \div 2.5 = 9.88$

$$\begin{array}{r} 25 \overline{) 247} \\ \underline{225} \\ 220 \\ \underline{200} \\ 200 \\ \underline{200} \\ 000 \end{array}$$

11 $14.297 \div 1.7 = 8.41$

$$\begin{array}{r} 17 \overline{) 142.97} \\ \underline{136} \\ 69 \\ \underline{68} \\ 17 \\ \underline{17} \\ 00 \end{array}$$

12 $30.8 \div 2.8 = 11$

$$\begin{array}{r} 28 \overline{) 308} \\ \underline{28} \\ 28 \\ \underline{28} \\ 00 \end{array}$$

4 If $53 \times 31 = 1,643$, then:

1 $16.43 \div 31 = 0.53$

2 $1.643 \div 0.53 = 3.1$

3 $1,643 \div 3.1 = 530$

4 $164.3 \div 0.53 = 310$

5 $164.3 \div 3.1 = 53$

6 $16.43 \div 5.3 = 3.1$

7 $1.643 \div 0.31 = 5.3$

8 $1643 \div 5.3 = 310$

9 $3.1 \times 5.3 = 16.43$

10 $31 \times 0.53 = 16.43$

11 $31 \times 5.3 = 164.3$

12 $0.31 \times 5.3 = 1.643$

13 $3.1 \times 53 = 164.3$

14 $3.1 \times 0.53 = 1.643$

15 $0.31 \times 53 = 16.43$

16 $31 \times 53 = 1,643$

5 Compare using (<, = or >):

1 $2.5 \div 0.5 = 25 \div 5$

2 $0.45 \div 9 < 45 \div 0.9$

3 $30 \div 1.5 > 3 \div 15$

4 $3.6 \div 1.2 = 0.36 \div 0.12$

5 $48 \div 0.8 > 4.8 \div 8$

6 $6.3 \div 0.9 < 63 \div 0.9$

7 $1.44 \div 12 < 14.4 \div 0.12$

8 $225 \div 25 > 0.225 \div 0.25$

9 $2.7 \div 9 > 0.27 \div 9$

10 $5 \div 0.8 = 50 \div 8$

6 Answer the following:

- 1 Rashida saved 350 pounds to buy a toy car. She was saving 12.5 pounds for every day she did some simple work. How many days did she have to work to save enough cash to buy the toy?

$$350 \div 12.5 = 28 \text{ days}$$

- 2 A father divided 99 pounds equally among his five children. How many pounds does each son take?

$$99 \div 5 = 19.8 \text{ pounds}$$

- 3 Mona bought 9 meters of fabric, and paid 214.2 pounds. What is the price of one meter of fabric?

$$214.2 \div 9 = 23.8 \text{ pounds}$$

- 4 If the profits of a shop are 728 pounds, and these profits are to be distributed equally among 5 persons, what is the share of one person?

$$728 \div 5 = 145.6 \text{ pounds}$$

- 5 A car consumed 210 liters of gasoline in 4 months. What is the average amount of gasoline that the car consumed in one month?

$$210 \div 4 = 52.5 \text{ L}$$

- 6 Bilal buys 6 bags of fruits, each bag contains 4.25 kg. He wants to give some fruits to two of his friends. What is the weight of the fruits that each friend takes?

$$(6 \times 4.25) \div 2 = 12.75 \text{ kg}$$

- 7 Maha walked 3,000 meters every day for two weeks, the following week she walked 14 kilometers.

How many kilometers did she walk during those three weeks?

$$3,000 \times 14 = 42,000 \text{ m} = 42 \text{ km}$$

$$42 + 14 = 56 \text{ km}$$

- 8 Sarah bought 20 kilograms of sugar. If she uses 4.5 kilograms to make the drinks and distributes the rest among 5 bags equally, how many kilograms of sugar are in each bag?

$$(20 - 4.5) \div 5 = 3.1 \text{ kg}$$

Assessment

on Lessons 12&13

Unit 5

First: Use the standard algorithm to divide:

1 $17.4 \div 0.6 = 29$

$$\begin{array}{r} 29 \\ 6 \overline{) 174} \\ \underline{12} \\ 54 \\ \underline{54} \\ 00 \end{array}$$

2 $93.1 \div 0.7 = 133$

$$\begin{array}{r} 133 \\ 7 \overline{) 931} \\ \underline{7} \\ 23 \\ \underline{21} \\ 21 \\ \underline{21} \\ 00 \end{array}$$

3 $8 \div 0.32 = 25$

$$\begin{array}{r} 25 \\ 32 \overline{) 800} \\ \underline{64} \\ 160 \\ \underline{160} \\ 000 \end{array}$$

Second: If $434 \times 12 = 5,208$, then:

1 $520.8 \div 0.12 = 4,340$ 2 $52.08 \div 0.12 = 434$

3 $5.208 \div 0.12 = 43.4$ 4 $5,208 \div 0.12 = 43,400$

5 $52.08 \div 12 = 4.34$ 6 $520.8 \div 43.4 = 12$

7 $52.08 \div 43.4 = 1.2$ 8 $5.208 \div 0.434 = 12$

9 $5,208 \div 43.4 = 120$ 10 $5.208 \div 434 = 0.012$

Third: Match:

- | | |
|---------------------|---------------------|
| 1 $12.25 \div 2.5$ | a $12.25 \div 0.25$ |
| 2 $122.5 \div 2.5$ | b $1.225 \div 0.25$ |
| 3 $1.225 \div 2.5$ | c $1,225 \div 0.25$ |
| 4 $1,225 \div 2.5$ | d $12.25 \div 25$ |
| 5 $12,250 \div 2.5$ | e $12,250 \div 25$ |

Assessment on Concept 2



Choose the correct answer:

- 1 **0.045** liter = 45 milliliters
☒ a 0.045 ☐ b 45,000 ☐ c 0.45 ☐ d 4.500
- 2 3 Tenths \div 5 Hundredths = ... **6**
☐ a 15 ☒ b 6 ☐ c 0.015 ☐ d 0.06
- 3 $24.7 \div$... **100** ... = 0.247
☐ a 0.01 ☐ b 0.1 ☐ c 10 ☒ d 100
- 4 $9.6 \div 0.1 =$ **9.6×10**
☐ a 9.6×0.1 ☐ b 96×0.1 ☐ c 96×10 ☒ d 9.6×10
- 5 $0.001 \times$ **25** ... = $0.25 \div 10$
☐ a 0.25 ☐ b 2.5 ☒ c 25 ☐ d 250

Complete the following:

- 1 $75.03 \div$... **0.1** ... = 750.3 2 $18,000 \div 100 =$... **180**
- 3 $18 \times 0.01 = 18 \div$... **100** ... 4 $45.36 \text{ cm} =$ **453.6** mm.
- 5 If $2.5 \times 1.2 = 3$, then $3 \div 25 =$ **0.12**

Match:

1 25×0.1 2 2.5×0.1 3 2.5×0.01 4 2.5×10	a $2.5 \div 10$ b $2.5 \div 0.1$ c $0.25 \div 0.1$ d $0.25 \div 10$
---	--

Connections: 1 to b, 2 to d, 3 to c, 4 to a.

Answer the following:

A factory for the manufacture of pasta produces **832.5** kg of pasta daily, which are packed in bags of **450** grams per bag. Find the number of bags needed for this.

Number of bags = $832.5 \div 0.45 = 1,850$ bags

Unit 6 Numerical Expressions and Patterns

Concept 6.1 Evaluating Numerical Expressions and Patterns

Lesson

1-4 Order of Mathematical Operations Numerical Expressions with Parentheses Writing Expressions to Represent Scenarios Identifying Numerical Patterns

- 1 Use the **order of operations** to evaluate each expression, one step at a time:

$$\begin{aligned} 1 \quad & 1.5 + 2.5 + 0.7 \\ &= 4 + 0.7 \\ &= 4.7 \end{aligned}$$

$$\begin{aligned} 2 \quad & 9.8 - 2.6 - 1.3 \\ &= 7.2 - 1.3 \\ &= 5.9 \end{aligned}$$

$$\begin{aligned} 3 \quad & 8.01 + 7 - 10.02 \\ &= 15.01 - 10.02 \\ &= 4.99 \end{aligned}$$

$$\begin{aligned} 4 \quad & 24 - 5.5 + 4.3 \\ &= 18.5 + 4.3 \\ &= 22.8 \end{aligned}$$

$$\begin{aligned} 5 \quad & 0.2 \times 2 \times 4.2 \\ &= 0.4 \times 4.2 \\ &= 1.68 \end{aligned}$$

$$\begin{aligned} 6 \quad & 4.5 \div 3 \div 0.5 \\ &= 1.5 \div 0.5 \\ &= 3 \end{aligned}$$

$$\begin{aligned} 7 \quad & 2.5 \times 8 \div 0.5 \\ &= 20 \div 0.5 \\ &= 40 \end{aligned}$$

$$\begin{aligned} 8 \quad & 4.8 \div 6 \times 0.5 \\ &= 0.8 \times 0.5 \\ &= 0.4 \end{aligned}$$

$$\begin{aligned} 9 \quad & 8 \times 2.5 + 10.2 \\ &= 20 + 10.2 \\ &= 30.2 \end{aligned}$$

$$\begin{aligned} 10 \quad & 4.2 \times 10 - 8.2 \\ &= 42 - 8.2 \\ &= 33.8 \end{aligned}$$

$$\begin{aligned} 11 \quad & 7.5 + 4 \times 2.4 \\ &= 7.5 + 9.6 \\ &= 17.1 \end{aligned}$$

$$\begin{aligned} 12 \quad & 1.5 - 0.3 \times 0.3 \\ &= 1.5 - 0.09 \\ &= 1.41 \end{aligned}$$

$$\begin{aligned} 13 \quad & 4 \div 0.8 + 2.5 \\ &= 5 + 2.5 \\ &= 7.5 \end{aligned}$$

$$\begin{aligned} 14 \quad & 0.36 \div 0.9 - 0.4 \\ &= 0.4 - 0.4 \\ &= 0 \end{aligned}$$

$$\begin{aligned} 15 \quad & 4.2 + 1.6 \div 2 \\ &= 4.2 + 0.8 \\ &= 5 \end{aligned}$$

Mathematical Operations and Algebraic Thinking

2 Use the **order of operations** to evaluate each expression, one step at a time:

$$1 \quad 8.5 + 5.3 + 7.7 + 3.5$$

$$= 13.8 + 7.7 + 3.5$$

$$= 21.5 + 3.5$$

$$= 25$$

$$2 \quad 25 - 8.5 - 3.2 - 6$$

$$= 16.5 - 3.2 - 6$$

$$= 13.3 - 6$$

$$= 7.3$$

$$3 \quad 2.5 \times 10 \times 0.3 \times 0.1$$

$$= 25 \times 0.3 \times 0.1$$

$$= 7.5 \times 0.1$$

$$= 0.75$$

$$4 \quad 0.36 \div 0.01 \div 0.6 \div 0.3$$

$$= 36 \div 0.6 \div 0.3$$

$$= 60 \div 0.3$$

$$= 200$$

$$5 \quad 72 \times 0.1 + 0.5 \times 10$$

$$= 7.2 + 5$$

$$= 12.2$$

$$6 \quad 4.5 \times 100 - 50 \times 9$$

$$= 450 - 450$$

$$= 0$$

$$7 \quad 12 \div 0.4 + 1.5 \div 3$$

$$= 30 + 0.5$$

$$= 30.5$$

$$8 \quad 3.6 \div 0.9 - 0.24 \div 8$$

$$= 4 - 0.03$$

$$= 3.97$$

$$9 \quad 0.6 \times 8 + 7.5 \times 10 + 0.7 \times 3$$

$$= 4.8 + 75 + 2.1$$

$$= 79.8 + 2.1$$

$$= 81.9$$

$$10 \quad 7 \times 10 - 0.7 \times 50 - 0.3 \times 10$$

$$= 70 - 35 - 3$$

$$= 35 - 3$$

$$= 32$$

$$11 \quad 2.4 \div 3 + 3 \div 6 + 24 \div 0.8$$

$$= 0.8 + 0.5 + 30$$

$$= 1.3 + 2.1$$

$$= 31.3$$

$$12 \quad 4.8 \div 2 + 3.5 \div 7 - 6.4 \div 8$$

$$= 2.4 + 0.5 - 0.8$$

$$= 2.9 - 0.8$$

$$= 2.1$$

$$13 \quad 52 + 4.5 \times 10 - 7$$

$$= 52 + 45 - 7$$

$$= 97 - 7$$

$$= 90$$

$$14 \quad 45 - 14 + 2.5 \times 8$$

$$= 45 - 14 + 20$$

$$= 31 + 20$$

$$= 51$$

$$15 \quad 15 + 4 \times 0.3 - 0.2$$

$$= 15 + 1.2 - 0.2$$

$$= 16.2 - 0.2$$

$$= 16$$

$$16 \quad 8 + 0.35 \div 0.5 - 0.3 \times 4$$

$$= 8 + 0.7 - 1.2$$

$$= 8.7 - 1.2$$

$$= 7.5$$

3 Use the order of operations to evaluate each expression, one step at a time:

$$\begin{aligned} 1 \quad & 4.2 \times (10 - 9.2) \\ & = 4.2 \times 0.8 \\ & = \\ & = \\ & = 3.36 \end{aligned}$$

$$\begin{aligned} 2 \quad & (7.5 - 4) \times 0.1 \\ & = 3.5 \times 0.1 \\ & = \\ & = \\ & = 0.35 \end{aligned}$$

$$\begin{aligned} 3 \quad & (4.3 + 0.7) \times 0.3 \\ & = 5 \times 0.3 \\ & = \\ & = \\ & = 1.5 \end{aligned}$$

$$\begin{aligned} 4 \quad & 4 \times (5.8 + 4.2) \\ & = 4 \times 10 \\ & = \\ & = \\ & = 40 \end{aligned}$$

$$\begin{aligned} 5 \quad & 0.36 \div (0.9 - 0.3) \\ & = 0.36 \div 0.6 \\ & = \\ & = \\ & = 0.6 \end{aligned}$$

$$\begin{aligned} 6 \quad & (4.2 + 1.6) \div 2 \\ & = 5.8 \div 2 \\ & = \\ & = \\ & = 2.9 \end{aligned}$$

$$\begin{aligned} 7 \quad & 2.4 \div (7.8 - 7.2) \\ & = 2.4 \div 0.6 \\ & = \\ & = \\ & = 4 \end{aligned}$$

$$\begin{aligned} 8 \quad & 16 \div (0.9 + 0.7) \\ & = 16 \div 1.6 \\ & = \\ & = \\ & = 10 \end{aligned}$$

$$\begin{aligned} 9 \quad & (5.2 - 0.4) \div 6 \\ & = 4.8 \div 6 \\ & = \\ & = \\ & = 0.8 \end{aligned}$$

4 Use the order of operations to evaluate each expression:

$$\begin{aligned} 1 \quad & [0.85 \times (2.7 + 7.3)] - 3.5 \\ & = [0.85 \times 10] - 3.5 \\ & = 8.5 - 3.5 \\ & = \\ & = 5 \end{aligned}$$

$$\begin{aligned} 2 \quad & 25 + [0.5 \times (4.2 - 3) + 1] \\ & = 25 + [0.5 \times 1.2 + 1] \\ & = 25 + [0.6 + 1] \\ & = 25 + 1.6 \\ & = 26.6 \end{aligned}$$

$$\begin{aligned} 3 \quad & [(20.5 - 10) \times 0.3] \div 0.1 \\ & = [10.5 \times 0.3] \div 0.1 \\ & = 3.15 \div 0.1 \\ & = \\ & = 31.5 \end{aligned}$$

$$\begin{aligned} 4 \quad & [(0.36 + 1.2) \div (0.6 + 0.2)] \times 5 \\ & = [1.56 \div 0.8] \times 5 \\ & = 1.95 \times 5 \\ & = \\ & = 9.75 \end{aligned}$$

$$\begin{aligned} 5 \quad & 12 \times [(0.1 + 0.5) \times 10] \div 8 \\ & = 12 \times [0.6 \times 10] \div 8 \\ & = 12 \times 6 \div 8 \\ & = 72 \div 8 \\ & = 9 \end{aligned}$$

$$\begin{aligned} 6 \quad & 54 \div [75 \times 0.1 - (15 \div 10)] \\ & = 54 \div [7.5 - 1.5] \\ & = 54 \div 6 \\ & = \\ & = 9 \end{aligned}$$

5 Match:

1 $4.8 \div 0.2 \times 0.4 + 1.2$

2 $4.8 \div 0.2 \times (0.4 + 1.2)$

3 $4.8 \div (0.2 \times 0.4) + 1.2$

4 $4.8 \div [(0.2 \times 0.4) + 1.2]$

a 61.2

b 3.75

c 10.8

d 38.4

6 For each problem, write an expression that matches the clues. Then, evaluate the expression:

- 1 Add 5.9 and 12.6 Then multiply the result by 10

$$\begin{aligned} & (5.9 + 12.6) \times 10 \\ & = 18.5 \times 10 \\ & = 185 \end{aligned}$$

- 2 Add 5.25 and 3.1 Then divide the result by 0.1

$$\begin{aligned} & (5.25 + 3.1) \div 0.1 \\ & = 8.35 \div 0.1 \\ & = 83.5 \end{aligned}$$

- 3 Multiply 0.542 by 100 and add 2.5

$$\begin{aligned} & 0.542 \times 100 + 2.5 \\ & = 54.2 + 2.5 \\ & = 56.7 \end{aligned}$$

- 4 Divide 456 by 10 and add 4.4

$$\begin{aligned} & 456 \div 10 + 4.4 \\ & = 45.6 + 4.4 \\ & = 50 \end{aligned}$$

- 5 Divide 93 by 0.3 Then add 114.7 and divide the result by 5

$$\begin{aligned} & (93 \div 0.3 + 114.7) \div 5 \\ & = (310 + 114.7) \div 5 \\ & = 424.7 \div 5 = 84.94 \end{aligned}$$

- 6 Add 30.5, 5.5, and 4 Then subtract the result from 125.5 and finally multiply by 100

$$\begin{aligned} & [125.5 - (30.5 + 5.5 + 4)] \times 100 \\ & = [125.5 - 40] \times 100 \\ & = 8,550 \end{aligned}$$

- 7 Multiply 7.6 by 100 Next subtract 34.3 Then add 12.4 Finally divide the result by 0.1

$$\begin{aligned} & (7.6 \times 100 - 34.3 + 12.4) \div 0.1 \\ & = 738.1 \div 0.1 \\ & = 7,381 \end{aligned}$$

- 8 Divide 4.5 by 0.1 Then add 5.5. Multiplied by 10

$$\begin{aligned} & 4.5 \div 0.1 + 5.5 \times 10 \\ & = 45 + 5.5 \times 10 \\ & = 45 + 55 \\ & = 100 \end{aligned}$$



7 Answer the following:

- Adel bought 16.5 kg of apples. He gave 1.5 kg of them to his family and wants to give the rest to 5 of his friends. How many kilograms would each friend get if he divided it equally among them?

$$(16.5 - 1.5) \div 5 = 3 \text{ kg}$$

- Maha walked 2.5 kilometers every day for two weeks. The following week, she walked 54.2 km. How many kilometers did she walk during those three weeks?

$$2.5 \times 14 + 54.2 = 35 + 54.2 = 89.2 \text{ km}$$

- Bilal bought 6 bags of balloons. Each bag contains 12 balloons. He wants to give balloons to his friends at his birthday party. If he has 8 friends at the party, how many balloons will each friend take?

$$6 \times 12 \div 8 = 9 \text{ balloons}$$

8 Write the rule for each pattern with a variable. Then, complete the pattern by finding the missing values:

- 2, 5, 8, 11, 14, 17, ..., 20, ..., 23, ..., 26 .. Rule: ... $n + 3$

- 3, 8, 13, 18, 23, 28, ..., 33, ..., 38, ..., 43 .. Rule: ... $n + 5$

- 58, 54, 50, 46, 42, 38, ..., 34, ..., 30, ..., 26 Rule: ... $n - 4$

- 90, 80, 70, 60, 50, ..., 40, ..., 30, ..., 20 Rule: ... $n - 10$

- 1, 2, 4, 8, 16, 32, ..., 64, ..., 128, ..., 256 Rule: ... $n \times 2$

- 1, 3, 9, 27, 81, ..., 243, ..., 729, ..., 2,187 Rule: ... $n \times 3$

- 256, 128, 64, 32, ..., 16, ..., 8, ..., 4 Rule: ... $n \div 2$

9 Write the **rule** for each pattern with a **variable**. Then, complete the pattern by finding the missing values:

1

Input	Output
15	8
17	10
21	14
25	18
27	20

Rule: $n - 7$

2

Input	Output
18	10
28	20
38	30
48	40
58	50

Rule: $n - 8$

3

Input	Output
5	8
7	10
9	12
11	14
13	16

Rule: $n + 3$

4

Input	Output
1	6
2	7
3	8
4	9
5	10

Rule: $n + 5$

5

Input	Output
39	13
33	11
27	9
21	7
15	5

Rule: $n \div 3$

6

Input	Output
3	9
6	18
9	27
12	36
15	45

Rule: $n \times 3$

7

Input	Output
6	3
10	5
14	7
18	9
22	11

Rule: $n \div 2$

8

Input	Output
2	6
4	12
6	18
8	24
10	30

Rule: $n \times 3$

10 Use the **rule** shown and complete the table:

1

Input	Output
15	3
25	5
35	7
45	9
55	11

Rule: $n \div 5$

2

Input	Output
3	9
9	27
15	45
24	72
27	81

Rule: $n \times 3$

3

Input	Output
16	12
20	16
24	20
28	24
32	28

Rule: $n - 4$

4

Input	Output
1	8
2	9
3	10
4	11
5	12

Rule: $n + 7$

Assessment on Concept 1



First Choose the correct answer:

1 $4.5 + 35 \times 0.1 = \dots\dots\dots$ **8**

a 8

b 3.95

c 0.8

d 39.5

2 $1.2 \times (0.3 + 0.2) = \dots\dots$ **0.6**

a 0.56

b 0.6

c 6

d 5.6

3 The mathematical expression that expresses "Add 3.5 and 3.7 Then multiply by 0.8" is **$(3.5 + 3.7) \times 0.8$**

a $3.5 + 3.7 \times 0.8$

b $(3.5 + 3.7) \times 0.8$

c $3.5 + (3.7 \times 0.8)$

d $3.5 \times 3.7 + 0.8$

4 The mathematical expression " $4.5 - 0.3 \div 1.2$ " is expressed as:

a subtract 0.3 from 4.5 Then divide by 1.2

b divide 0.3 by 1.2 Then subtract 4.5

c subtract 4.5 from 0.3 Then divide by 1.2

d divide 0.3 by 1.2. Then subtract the result from 4.5

5 $5.6 + 0.5 - 0.4 \times 1.5 = \mathbf{5.6 + 0.5 - 0.6}$

a $6.1 - 0.6$

b $5.6 + 0.1 \times 1.5$

c $5.6 + 0.5 - 0.6$

d $6.1 - 0.4 \times 1.5$

6 The rule of the following pattern is

Input	Output
3	12
4	16
5	20

a $n + 9$

b $n - 9$

c $n \times 4$

d $n \div 9$

7 The rule of the following pattern is

Input	Output
20	8
18	6
16	4

a $n - 12$

b $n \div 3$

c $n \times 4$

d $n + 12$

Second Use the order of operations to evaluate each expression:

1 $9.2 + 2.5 \times 4 \div 5$

= $9.2 + 10 \div 5$

= $9.2 + 2$

= 11.2

2 $5 \times [4.8 \div (8.4 - 7.2)]$

= $5 \times [4.8 \div 1.2]$

= 5×4

= 20

3 $(6.7 - 2.3) \times (8.5 + 2.5)$

= 4.4×11

= 48.4

= 48.4

Third Answer the following:

Hoda is filling identical vases with water for flower arrangements at the florist.

She starts with 15.75 liters and pours an equal amount into 16 vases. When she is finished, Hoda still has 3.75 L of water left. How much water is in each vase?

Give your answer in liters. Write an expression that matches the scenario, then evaluate the expression.

$(15.75 - 3.75) \div 16 = 0.75 \text{ L}$



Assessments on Units

Assessment

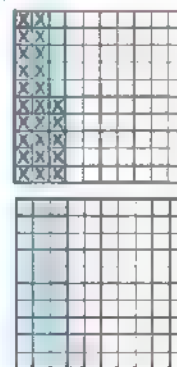
on Unit

1



First: Choose the correct answer:

- 1 45,000.04 (In word form):
 - a Forty-five and four hundredths
 - b Forty-five and four thousandths
 - c Forty-five thousand and four hundredths
 - d Forty-five thousand and four thousandths
- 2 Six milliard, Twenty million, 4 hundred thousand, eighty is
 - a 6,020,400,080
 - b 6,200,400,800
 - c 6,002,004,800
 - d 6,248
- 3 The value of is increased by a factor of 10 to 75.2.
 - a 752
 - b 7.52
 - c 75.2
 - d 0.752
- 4 $50 + 7 + 0.02 + 0.004 =$
 - a 57.024
 - b 57.24
 - c 57.6
 - d 57.204
- 5 $47.98 \approx$ (To the nearest Tenth)
 - a 47.9
 - b 47.0
 - c 48.0
 - d 48.9
- 6 $3.07 =$
 - a $30 + 7$
 - b $30 + 0.7$
 - c $3 + 0.07$
 - d $30 + 0.07$
- 7 $85.23 \div 10 =$
 - a 8,523
 - b 852.5
 - c 85.25
 - d 8.523
- 8 $23 + 0.9$ $230 + 0.09$
 - a $>$
 - b $<$
 - c $=$
 - d $<$
- 9 The expression that expresses the corresponding model is
 - a $0.3 - 0.025$
 - b $0.3 + 0.25$
 - c $0.3 - 0.25$
 - d $0.03 + 0.25$
- 10 The expression that expresses the corresponding model is
 - a $2.2 + 0.32$
 - b $0.22 - 0.32$
 - c $0.22 + 0.1$
 - d $0.22 - 0.01$



Final Revision

Second: Complete the following:

- 1 Sixty-five million and five thousandths (In standard form): **65,000,000.005** .
- 2 In 8,567.491, the place value of 9 is **Hundredths** and its value is **0.09** .
- 3 The value of 56.47 is decreased by a factor of 10 to **5.647** .
- 4 $43.78 \approx$ **43.8** (To the nearest Tenth)
- 5 $400 + 20 + 0.1 + 0.008 =$ **420.108** 6 $45.95 \times 10 =$ **459.5**
- 7 6 Hundredths + 6 Thousandths = **66** Thousandths
- 8 The estimated difference of $(7.12 - 2.9)$ using rounding to the nearest whole number strategy is **4** .
- 9 **0.38** + 0.62 = 1 10 **1** - 0.12 = 0.88

Third: Match:

- | | |
|--------------------------------------|----------|
| 1 Three hundred and three hundredths | a 300.3 |
| 2 $300 + 0.3$ | b 300.03 |
| 3 3.003×10 | c 3.03 |
| 4 $30.03 \div 10$ | d 30.03 |
| 5 $3.93 - 0.9$ | e 3.003 |

Fourth: Compare using (<, = or >):

- 1 35.001 < 35.100 2 75.012 < 75.102
- 3 $100 + 2 + 0.05 > 100.25$ 4 $45.6 \times 10 > 45 \div 10$
- 5 80.002 < Eight hundred and two hundredths

Fifth: Answer the following:

- 1 A farmer can raise 25,327 liters of water on one day using the shadouf and 47,128 liters on another day. How many liters can the farmer raise in two days?
 $25,327 + 47,128 = 72,455$ liters .
- 2 Walaa is traveling from Cairo to Matrouh. If the distance between Cairo and Matrouh is 446.3 kilometers, and Walaa traveled 267.53 kilometers, then what is the distance that Walaa has to travel to reach Matrouh?
 $446.3 - 267.53 = 178.77$ km .
- 3 Omar has 67.40 pounds, and his sister Fairouz has 70.45 pounds. They want to buy a game for 342.5 pounds. How much do they need to buy this game?
 $70.45 + 67.40 = 137.85$ pounds $342.5 - 137.85 = 204.65$ pounds .

Assessment on Unit 2



First: Choose the correct answer:

1 $7.5 + 5.25 = m - 2.35$ is

☐ a a variable

☐ b a mathematical expression

☒ c an equation

☐ d other

2 In the equation $6.45 + x = 9.15$, if 9.15 represents the sum of two numbers and 6.45 represents one of the two numbers, then x represents

☒ a the other number

☐ b the sum of the two numbers

☐ c the difference between the two numbers

☐ d other

3 If $12.4 + x = 26.3 - 10.04$, then $x =$

☐ a $12.4 + 26.3 + 10.04$

☒ b $(26.3 - 10.04) - 12.4$

☐ c $13.26 + 12.4$

☐ d $(26.3 - 10.04) + 12.4$

4 The equation that expresses the corresponding bar model is

☐ a $y = 2.63 + 1.2$

☒ b $y = 2.63 - 1.2$

☐ c $y - 1.2 = 2.63$

☐ d $y + 2.63 = 3.83$

	2.63
y	1.2

5 "Ahmed has 5 pens and 3 books" is

☐ a a variable

☐ b a mathematical expression

☐ c an equation

☒ d other

6 If the factors of a number are 1, 2, 4, 8, then its prime factors are

☒ a $2 \times 2 \times 2$

☐ b 2×4

☐ c 1×8

☐ d $1 \times 2 \times 4$

7 The LCM of any two prime numbers is

☐ a the largest number

☐ b the smallest number

☐ c 0

☒ d their product

8 18 is a multiple of

☐ a 8

☐ b 36

☒ c 9

☐ d 12

9 The LCM for 6 and 4 is

☒ a 12

☐ b 24

☐ c 36

☐ d 48

10 30 is a common multiple of the two numbers

☐ a 10, 8

☐ b 6, 12

☐ c 30, 9

☒ d 10, 15

Final Revision

Second: Complete the following:

- 1 If $8.235 + p = 10.224$, then $p = \dots\dots 1.989$.
- 2 All prime numbers are **odd** numbers, except **2** which is an even number.
- 3 If $x = 3.51$, then $x - 1.28 = \dots\dots 2.23$.
- 4 If $t \times 8 = 56$, then $t = \dots\dots 7$.
- 5 The equation that represents [4.02 plus "a" equals 12] is **$4.02 + a = 12$**
- 6 The factors of 25 are **1, 5, 25**.
- 7 The prime factors of 25 are **5×5** .
- 8 A number whose prime factors are **2, 3, 5** is **30** .
- 9 **0** is a common multiple to all numbers.
- 10 Use the equation " $s - 0.12 = 7.25$ " to complete the corresponding bar model.

S	
0.12	7.25

Third: Complete the factor tree, then find the GCF and LCM for 12 and 18.

12 and 18	
12 = $2 \times 2 \times 3$	
18 = $2 \times 3 \times 3$	
<hr/>	
GCF = 2×3 = 6	
LCM = $2 \times 2 \times 3 \times 3$ = 36	



Fourth: Answer the following:

Mary has **25** blue roses and **15** red roses that she wants to distribute in bouquets, so that each bouquet contains the same number of roses of each color.

What is the largest number of bouquets that Mary needs for each type of rose?

GCF = 5 groups

5 bouquets

5 blue roses and 3 red roses

Accumulative Assessments

on Units 1&2

Assessment 1

First: Complete the following:

- 1 The place value of the digit 5 in 6,230.257 is **Hundredths**.
- 2 The number 15.892 rounded to the nearest **Hundredth** is **15.89**.
- 3 The prime factors of **18** are ... **2, 3, 3** ...
- 4 **0** ... is a common multiple of all numbers.

Second: Choose the correct answer:

- 1 The value of _____ increases when multiplying by 10 to 4.25
 a 425 b 42.5 c 4.25 **d 0.425**
- 2 $4.06 =$ _____
 a $4 + 6$ b $40 + 0.6$ **c $4 + 0.06$** d $10 + 0.06$
- 3 The smallest prime number is _____
 a 0 b 1 **c 2** d 3
- 4 The GCF for 8 and 12 is _____
 a 8 b 12 c 24 **d 4**

Third: Compare using (<, = or >):

- 1 45.6×10 **>** $4.56 \div 10$ 2 $7.25 - 3.8$ **<** $3.8 + 0.35$
- 3 $78,258.023$ **<** $78,258.203$ 4 $20 + 7 + 0.08$ **<** $27 + 0.8$

Fourth: Answer the following:

- 1 Fares traveled from Cairo to Alexandria via the agricultural road and stopped for a rest in the cities of Tanta and Damanhur. The distance between Cairo and Alexandria is **225 km**. The distance between Cairo and Tanta is **100.3**, and the distance between Tanta and Damanhur is **64.7 km**. Calculate the distance between Alexandria and Damanhur.

$$100.3 + 64.7 = 165 \text{ km} \quad 225 - 165 = 60 \text{ km}$$

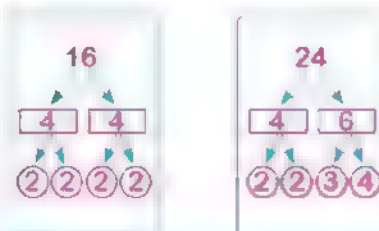
- 2 Find the **GCF** and **LCM** for **24** and **16**. Use prime factorization.

$$16 = 2 \times 2 \times 2 \times 2$$

$$24 = 2 \times 2 \times 2 \times 3$$

$$\text{GCF} = 2 \times 2 \times 2 = 8$$

$$\text{LCM} = 2 \times 2 \times 2 \times 2 \times 3 \times 3 = 48$$



Assessment 2

First: Complete the following:

- 1 All prime numbers are odd numbers, except **2** which is an **even** number.
- 2 The prime numbers between 20 and 30 are **23** and **29**.
- 3 $300 + 50 + 0.2 + 0.008 = \dots$ **350.208**.
- 4 Five milliard, thirty thousand, and ninety-nine thousandths (In standard form):
5,000,030,000.099

Second: Choose the correct answer:

- 1 The equation that represents [3.5 plus "m" equals 8.7] is
☐ a $m - 3.5 = 8.7$ ☐ b $m - 8.7 = 3.5$ ☒ c $3.5 + m = 8.7$ ☐ d $3.5 - m = 8.7$
- 2 The value of 78.25 is decreased when dividing by 10 to
☐ a 7,825 ☐ b 782.5 ☒ c 7.825 ☐ d 0.7825
- 3 $502 + 0.2 + 0.005$ $50 + 2 + 0.25$
☒ a $>$ ☐ b $=$ ☐ c $<$ ☐ d \leq

Third: Put (✓) for the correct statement and (X) for the wrong statement:

- 1 8 is a common multiple of 16 and 24. (**X**)
- 2 " $4.5 + 2.3 + y = 15$ " is called an equation. (**✓**)
- 3 $300 + 50 + 0.2 + 0.003 = 350.203$ (**✓**)

Fourth Answer the following:

A class has 16 girls and 12 boys. The teacher wants to divide them into equal groups with the same number of boys and girls. What is the largest number of groups that can be formed? How many boys are in each group? And how many girls are in each group?

GCF = 4 groups 4 girls and 3 boys

Assessment on Unit 3



First: Choose the correct answer:

1 $3 \times 1,000$ 50×60

a $>$

b $=$

c $<$

d \leq

2 $5,062 \times 7$ $5,602 \times 7$

a $>$

b $=$

c $<$

d \leq

3 The model that represents $2,075 \times 26$ is

	2,000	70	5
20			
6			

a

	2,000	700	5
20			
6			

b

	2,000	700	50
20			
6			

c

	2,000	70	5
2			
60			

d

4 The model that represents $3,502 \times 31$ is

9,000	1,500	6
3,000	500	2

a

30,000	5,000	20
9,000	1,500	6

b

90,000	15,000	60
3,000	500	2

c

9,000	1,500	60
300	50	2

d

5 $(2 \times 50) + (2 \times 7) + (60 \times 50) + (60 \times 7) =$

a 26×57

b 62×57

c 62×75

d 26×75

6 $45 \times 123 =$

a $(5 \times 100) + (5 \times 20) + (5 \times 3) + (40 \times 100) + (40 \times 20) + (40 \times 3)$

b $(5 \times 100) + (5 \times 20) + (5 \times 3) + (4 \times 100) + (4 \times 20) + (4 \times 3)$

c $(50 \times 100) + (50 \times 20) + (50 \times 3) + (40 \times 100) + (40 \times 20) + (40 \times 3)$

d $(50 \times 100) + (50 \times 20) + (50 \times 3) + (4 \times 100) + (4 \times 20) + (4 \times 3)$

7 The model that represents $(90 \times 30) + (90 \times 4) + (3 \times 30) + (3 \times 4)$ is

	4	3
30		
90		

a

	90	3
30		
4		

b

	90	4
30		
3		

c

	90	30
4		
3		

d

8 The problem that represents the opposite area model is

a $4,275 \times 46$

b 495×46

c $4,095 \times 46$

d $4,905 \times 46$

9 $\times 7 = 7,000$

a 10

b 100

c 1,000

d 10,000

10 $12 \times \dots = 12 \times (200 + 30 + 30)$

a 12×260

b $12 \times 2,330$

c 12×800

d $12 \times 2,033$

Final Revision

Second: Complete the following:

- 1 $9 \times 100,000 = 900,000$
- 2 $5 \times 10,000 = 50,000$
- 3 $10,000 \times 7 = 70,000$
- 4 $42 \times 100 = 60 \times 70$
- 5 $7 \times 123 = (7 \times 100) + (7 \times 20) + (7 \times 3)$
- 6 $8 \times 3,504 = (8 \times 3,000) + (8 \times 500) + (8 \times 4)$
- 7 $(5 \times 30) + (5 \times 8) + (60 \times 30) + (60 \times 8) = 65 \times 38$
- 8 $45 \times 22 = 990$
- 9 $5,020 \times 12 = 60,240$
- 10 $232 \times 13 = 3,016$

Third: Match each model to the problem representing it:

$\begin{array}{r} 2,000 \ 50 \ 4 \\ 30 \square \square \square \\ 7 \square \square \square \end{array}$	$\begin{array}{r} 4,000 \ 500 \ 2 \\ 70 \square \square \square \\ 3 \square \square \square \end{array}$	$\begin{array}{r} 500 \ 20 \ 4 \\ 70 \square \square \square \\ 3 \square \square \square \end{array}$	$\begin{array}{r} 5,000 \ 400 \ 20 \\ 30 \square \square \square \\ 7 \square \square \square \end{array}$
1	2	3	4
a	b	c	d
$4,502 \times 73$	$5,420 \times 37$	$2,054 \times 37$	524×73

Fourth: Solve each problem using the mentioned strategy:

1 $7,086 \times 54$ (Distributive Property) 382,644	2 $6,021 \times 24$ (Partial Products) 144,504	3 $6,008 \times 67$ (Area Model) 402,536
---	--	--

Fifth: Answer the following:

Mona is making tahini to use in dishes at her restaurant. Her recipe uses 140 grams of sesame seeds to make 120 milliliters of tahini. She makes the recipe 20 times each week. How many grams of sesame seeds does she use each week?

$$20 \times 140 = 2,800 \text{ g}$$

How many milliliters of tahini does she make each week?

$$20 \times 120 = 2,400 \text{ mL}$$

How many liters of tahini does she make in 35 weeks?

$$2,400 \times 35 = 84,000 \text{ mL} = 84 \text{ L}$$

Accumulative Assessments

on Units 1- 3

Assessment 1

First: Complete the following:

1. 4 Tenths – 25 Thousandths = $0.4 - 0.025 = 0.375$
2. If $2.5 + 12 = b + 7.5$, then $b = 7$
3. $45 \times 12 = (40 \times 10) + (40 \times 2) + (5 \times 10) + (5 \times 2)$

Second: Choose the correct answer:

1. The multiplication problem that represents the opposite model is _____

a 21×88

b 30×88

c 21×16

d 30×16

2. _____ ≈ 12.08 (To the nearest two decimal places)

a 12.084

b 12.086

c 12.073

d 12.069

3. 6 is a factor of _____

a 2

b 3

c 12

d 8

Third: Find the result using the mentioned strategy:

1. 706×24

(Standard Algorithm)

16,944

2. 621×16

(Partial Products)

9,936

3. $6,008 \times 32$

(Area Model)

192,256

Fourth: Put (✓) for the correct statement and (✗) for the wrong statement:

1. The LCM for 12 and 18 is 6. (✗)
2. 8,000.08 in word form is eight thousand and eight hundredths. (✓)
3. $54,020 \times 5 > 50,402 \times 5$ (✓)

Fifth: Answer the following:

A school has 25 classes, each class has 19 girls and 17 boys.

How many students are there in the school?

$17 + 19 = 36$ students

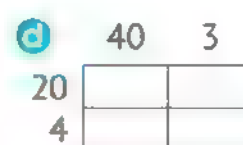
$36 \times 25 = 900$ students

Assessment 2

First: Choose the correct answer:

- The least common multiple of any two prime numbers is
 - ☐ a the largest number
 - ☐ b the smaller number
 - ☒ c the product of the two numbers
 - ☐ d the sum of the two numbers

- The model that represents 24×403 is



- The value of the digit 6 in 30.067 is ...
 - ☐ a 60
 - ☐ b 6
 - ☐ c 0.6
 - ☒ d 0.06

Second: Complete the following:

- $23 \times 102 = \dots$ **2,346**
- The estimate of the sum of $(56.3 + 4.9)$ using rounding to the nearest whole number strategy is **61**.
- If $b = 3.25$, then $8.02 - b = \dots$ **4.77**.

Third: Compare using (<, = or >):

- $56.02 \times 3.2 = 179 + 0.264$
- $45.89 \div 10 < 40 + 5 + 0.8 + 0.09$
- The common factor of all numbers $>$ The common multiple of all numbers

Fourth: Match:

☒ 1 $18.1 - 4.9$

☒ 2 $13.2 \div 10$

☒ 3 11×12

☐ a 22×6

☐ b $7.8 + 5.4$

☐ c 0.132×10

Fifth: Answer the following:

- Wael bought 23 pens. The price of one pen is 235 piasters.
How much did Wael pay?

$23 \times 235 = 5,405$ piasters

- Find the GCF and LCM for "3 X 6" and "4 X 3". Use prime factorization.

GCF = 6 , LCM = 36

Assessment on Unit 4



First: Choose the correct answer:

- 1 In $428 \div 2 = 214$, the dividend is .

a 214

b 2

c 428

d 824

- 2 Which of the following can be used to check the result of the opposite model?

a $3,113 \times 25$

b 323×25

c $3,023 \times 25$

d 332×25

	300	10	10	3
	8,075	575	325	75
25	- 7,500	- 250	- 250	- 75
	575	325	75	0

- 3 Wafaa wanted to distribute 250 candy bars equally among 12 of her colleagues, so

a each person took 20 pieces, and 10 pieces remained

b each person took 10 pieces, and 20 pieces remained

c each person took 21 pieces, and 2 pieces remained

d each person took 21 pieces, and there is nothing left

- 4 $30,000 \div 50 =$

a 6

b 60

c 600

d 6,000

- 5 $\div 600 = 40$

a 24,000

b 2,400

c 240

d 24

- 6 $40,000 \div \dots\dots\dots = 800$

a 5

b 50

c 500

d 5,000

- 7 The quotient in the following division model is .

a 19,044

b 92

c 117

d 207

$$\begin{array}{r} 207 \\ 92 \overline{) 19,044} \\ \underline{- 184} \\ 644 \\ \underline{- 644} \\ 000 \end{array}$$

- 8 The divisor in the following division model is .

a 6,700

b 65

c 103

d 5

$$\begin{array}{r} 0103 \\ 65 \overline{) 6,700} \\ \underline{- 6,5} \\ 200 \\ \underline{- 195} \\ 5 \end{array}$$

Final Revision

- 9 The remainder in the following division model is

a	6,090	100	40	5
b	42	6,090	1,890	210
c	145	42	- 4,200	- 1,680
d	0		1,890	210
				0

- 10 The dividend in the following division model is.....

a	8,935	372
b	24	24
c	372	8,935
d	7	72
		1,735
		- 1,68
		55
		- 48
		7

Second: Complete the following:

- 1 $80 \times 300 = \dots$ **24,000**
 2 $40,000 \div 500 = \dots$ **80**
 3 $45,060 \div 15 =$ **3,004**
 4 $60,144 \div 12 = \dots$ **5,012**
 5 $72,368 \div 9 = 8,040$ and the remainder is **8** .

Third: Complete the following models:

1	00314
45	14,130
-	135
	63
-	45
	180
-	180
	000

2	1,000	30	4
25	5,850	850	100
-	5,000	- 750	- 100
	850	100	0

3	0202
43	8,686
-	86
	86
-	86
	0

Fourth: Compare using (<, = or >):

- 1 $45,045 \div 5 =$ $36,036 \div 4$ 2 $45,000 \div 50 >$ $36,000 \div 400$
 3 $1,375 \div 11 =$ $1,250 \div 10$ 4 $36,048 \div 12 >$ $3,648 \div 12$
 5 $65,125 \div 25 <$ $65,150 \div 25$

Fifth: Answer the following:

- 1 Adel wants to distribute **4,530** pounds among **15** people equally. What is the share for each person?

$$4,530 \div 15 = 302 \text{ pounds}$$

- 2 A school has **570** boys and **600** girls, and they are divided into **26** classes equally. How many students are there in each class?

$$570 + 600 = 1,170 \text{ students} \quad 1,170 \div 26 = 45 \text{ students}$$

Accumulative Assessments

on Units 1- 4

Assessment 1

First: Complete the following:

- 1 $45.036 = 45 + 0.03 + 0.006$
- 2 The factors of 15 are 1, 3, 5, 15
- 3 If $12 \times 213 = 2,556$, then the remainder of $2,560 \div 12$ is 4
- 4 $38 \times 72 = (30 \times 70) + (30 \times 2) + (8 \times 70) + (8 \times 2)$

Second: Choose the correct answer:

- 1 The numbers 2, 7, 11, 13 are numbers.
 a odd b even c prime d composite
- 2 The value of 9 in the Hundredths place is
 a 900 b 0.9 c 0.09 d 0.009
- 3 $3,600 \div 20$ 60×30
 a < b = c > d \leq

- 4 The divisor in the corresponding division problem is
 a 4 b 2,500
 c 208 d 12

	200	8
12	2,500	100
	- 2,400	- 96
	100	4

Third: Find the result using the mentioned strategy:

- 1 $3,844 \div 31$ (Partial Quotients Model)
- 2 $1,545 \div 45$ (Area Model)

124

34 (R15)

Fourth: Answer the following:

- 1 Hana bought 24 kg of flour for 288 pounds. What is the price of one kilogram?
 $288 \div 24 = 12$ pounds
- 2 Emad is 1.45 meters tall, and Hajar is 1.39 meters tall. What is the difference between their heights?
 $1.45 - 1.39 = 0.06$ m
- 3 Find the GCF and LCM for 6 and 9. Use prime factorization.
 GCF = 3, LCM = 18

Assessment 2

First: Find the result using your preferred strategy:

1 $4,836 \div 6 = 806$

2 $4,254 \times 31 = 131,874$

3 $45.027 - 29.38 = 15.647$

4 $615.3 + 2.847 = 618.147$

Second: Choose the correct answer:

1 If the value of the digit 7 is 0.7, then its place value is the

a Ones

b Tens

c Tenths

d Hundredths

2 When 45.82 is multiplied by 10, the value of the digit 8 changes to

a 80

b 8

c 0.8

d 0.08

3 is the common multiple of all numbers.

a 0

b 1

c 2

d 3

4 The problem that represents the corresponding model is

a $16,884 \div 42$

b $16,884 \div 420$

c $42 \div 420$

d $420 \div 42$

$$\begin{array}{r} 402 \\ 42 \overline{) 16,884} \\ \underline{- 8,400} \\ 8484 \\ \underline{- 8400} \\ 8400 \\ \underline{- 8400} \\ 00 \end{array}$$

Third: Compare using (<, = or >):

1 $95.201 > 95.021$

2 $13 \times 125 < 13 \times 521$

3 $28.8 \times 10 = 12 \times 24$

4 3 Hundredths < 300 Thousandths

Fourth: Answer the following:

1 Hatem goes to the club for soccer training every 8 days, while his sister Walaa goes to the club for volleyball training every 6 days.

How many days will it be until they go to the club together?

LCM = 24 days

2 Arrange the following numbers in an ascending order:

12.05 , 1.205 , 120.5 , 1,205 , 10.25

1.205 , 10.25 , 12.05 , 120.5 , 1,205

Assessment

Unit

5



First: Choose the correct answer:

1 kg = 36 g

☐ a 0.036

☐ b 36,000

☐ c 0.36

☐ d 3.600

2 $0.01 \times$ = 0.045

☐ a 0.45

☐ b 4.5

☐ c 45

☐ d 450

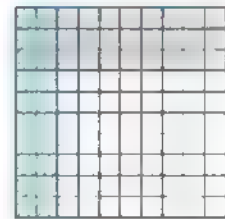
3 The multiplication problem that expresses the corresponding model is

☐ a 3×0.2

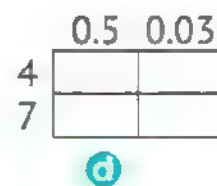
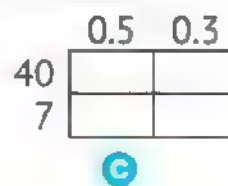
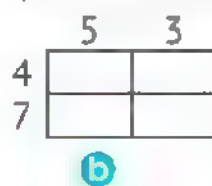
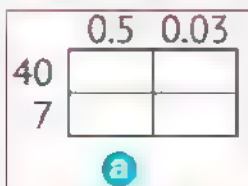
☐ b 0.3×2

☐ c 0.3×0.2

☐ d 3×2



4 The area model that represents 47×0.53 is



5 5 Tenths \times 3 Hundredths =

☐ a 15

☐ b 1.5

☐ c 0.15

☐ d 0.015

6 $25.3 \div$ = 0.253

☐ a 0.01

☐ b 0.1

☐ c 10

☐ d 100

7 $\div 0.1 = 36.24$

☐ a 362.4

☐ b 3,624

☐ c 3.624

☐ d 36,240

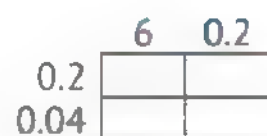
8 The multiplication equation that represents the corresponding model is

☐ a 0.24×0.62

☐ b 0.24×6.2

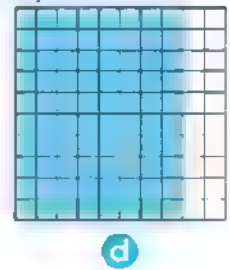
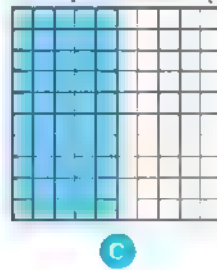
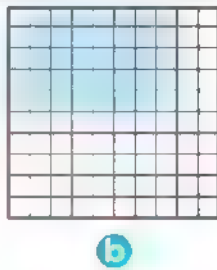
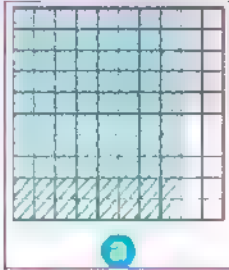
☐ c 2.4×6.2

☐ d 2.4×0.62



Final Revision

- 9 The model that represents the multiplication problem (0.5×0.8) is .



10 $4.5 \div 0.1 =$

a 4.5×0.1

b 45×0.1

c 45×10

d 4.5×10

Second: Complete the following:

1 If $8 \times 15 = 120$, then $8 \times 1.5 =$ **12** .

2 $11.5 \times 28.2 \rightarrow$ Estimate: **12** \times **28** = **336**

(To the nearest whole number)

3 $0.29 \text{ kg} =$ **0.29** \times **1,000** = **290** g.

4 The length of a rectangle is **1.2** cm and its width is **0.8** cm, then its area is **0.96** cm^2 .

5 **9.32** $\times 100 = 932$

6 $29.08 \div$ **0.1** = 290.8

7 $20.000 \div 0.001 =$ **20,000**

8 $18 \times 0.01 = 18 \div$ **100**

9 4 Tenths \times 5 Hundredths = **0.02**

10 4 Tenths \div 5 Hundredths = **8**

Third: Compare using (<, = or >):

1 4.5 km = 4,500 m

2 $35.5 \div 0.1$ > 35.5×0.1

3 2.5×3.5 = 25×0.35

4 0.06×0.4 < $0.6 \div 0.4$

Fourth: Use the standard algorithm to find:

1 $4.25 \times 3.7 = 15.725$

$$\begin{array}{r} 25 \\ \times 37 \\ \hline 1575 \\ + 12750 \\ \hline 15725 \end{array}$$

2 $5.6 \times 70.82 = 396.592$

$$\begin{array}{r} 6 \\ \times 7082 \\ \hline 42492 \\ + 354100 \\ \hline 396592 \end{array}$$

3 $98 \times 3.008 = 294.784$

$$\begin{array}{r} 8 \\ \times 3008 \\ \hline 24064 \\ + 270720 \\ \hline 294784 \end{array}$$

4 $45.5 \div 0.5 = 91$

$$\begin{array}{r} 91 \\ 5 \overline{)455} \\ - 45 \\ \hline 5 \\ - 5 \\ \hline 0 \end{array}$$

5 $0.6 \div 0.12 = 5$

$$\begin{array}{r} 5 \\ 12 \overline{)60} \\ - 60 \\ \hline 0 \end{array}$$

6 $14.224 \div 5.6 = 2.54$

$$\begin{array}{r} 2.54 \\ 56 \overline{)142.24} \\ - 112 \\ \hline 302 \\ - 280 \\ \hline 224 \\ - 224 \\ \hline 0 \end{array}$$

Fifth: Answer the following:

- 1 Huda bought 3 notebooks, each of 4.75 pounds, and 4 pens, each of 1.25 pounds. Calculate what Huda paid.

Price of notebook = $3 \times 4.75 = 14.25$ pounds

Price of pens = $4 \times 1.25 = 5$ pounds

Huda paid = $14.25 + 5 = 19.25$ pounds

- 2 Hiam bought 17 juice boxes; the price of each one is 2.25 pounds. How many pounds do you pay the seller?

Hiam paid = $17 \times 2.25 = 38.25$ pounds

And if she gives the seller 50 pounds, how does the seller return it?

The remainder = $50 - 38.25 = 11.75$ pounds

- 3 The capacity of an oil barrel is 243.75 liters, it was filled in bottles of 0.75 liters each. Find the number of bottles.

The number of bottles = $243.75 \div 0.75 = 325$ bottles

- 4 A rectangle has an area of 10.25 square meters and a length of 4.1 meters. Calculate the width and perimeter of the rectangle.

Width = $10.25 \div 4.1 = 2.5$ m.

P = $(2.5 + 4.1) \times 2 = 13.2$ m.

Accumulative Assessments

on Units 1- 5

Assessment 1

First: Choose the correct answer:

- 1 0.01 kilogram = ... gram(s)

a 1
b 10
c 100
d 1,000
- 2 $4.5 \times 12 =$

a 540
b 0.54
c 5.4
d 54
- 3 The **smallest** odd prime number is .

a 0
b 1
c 2
d 3

Second: Complete the following:

- 1 $73.2 \times 0.1 = \dots$ **7.32** ...
- 2 $65.4 \div 100 = \dots$ **0.654**
- 3 The factors of **28** are **1, 2, 4, 7, 14, 28**

Third: Find the result using your preferred strategy:

- 1 $1.44 \div 0.6 = \dots$ **2.4** ...
- 2 $2.45 \times 2.1 = \dots$ **5.145**
- 3 $45.69 + 24.38 = \dots$ **70.07**
- 4 $100.25 - 74.9 = \dots$ **25.35**

Fourth: Compare using (<, = or >):

- 1 Fifty and seventy-five hundredths **<** 75.50
- 2 $4 + 0.2 + 0.05 + 0.004$ **<** $40 + 2 + 0.5 + 0.04$
- 3 The smallest even prime number **<** The smallest odd prime number

Fifth Answer the following:

Hussam caught a fish weighing **1.035** kg and Essam caught a fish weighing **825** grams. What is the difference between the weights of the two fish in kilograms?

The difference = $1.035 - 0.825 = 0.21$ kg

Assessment 2

First: Choose the correct answer:

- 1 Samah bought **three** books. The price of one book is **3.25** pounds, so the amount that Samah paid = pounds.
 a 9 b 10 **c 9.75** d 9.5
- 2 The prime number the sum of whose factors sum is 6 is
 a 6 **b 5** c 12 d 7
- 3 If $a - 4.5 = 6$, then the variable "a" expresses
a the sum of the two numbers
 b the difference between the two numbers
 c half of the two numbers
 d twice the two numbers
- 4 $4.6 \times \dots = 4,600$
 a 100 **b 1,000** c 10 d 1

Second: Complete the following:

- 1 $700 + 8 + 0.3 + 0.009 = \dots$ **708.309**
- 2 The first 5 multiples of 6, except zero are **6 , 12 , 18 , 24 , 30** .
- 3 $1.02 \times 0.9 = \dots$ **0.918** .

Third: Find the result using the strategy you prefer:

- 1 $5.635 \div 2.3 = \dots$ **2.45**
- 2 $50.23 \times 15 = \dots$ **753.45**
- 3 $8.15 \times 0.1 = \dots$ **0.815**
- 4 $7 \div 0.35 = \dots$ **20**

Fourth: Compare using (<, = or >):

- 1 13×1.2 = 156×0.1
- 2 45.28 meters < 4 kilometers
- 3 70 Hundredths > 70 Thousandths
- 4 185×0.15 > 1.85×1.5

Assessment on Unit 6



First: Choose the correct answer:

1 $4.5 + 2.5 \times 2 =$

☒ a 9.5

☐ b 14

☐ c 9

☐ d 14

2 $6 + 2.5 \times 0 - 2.7 =$

☐ a $6 + 2.7$

☐ b 8.5×2.7

☐ c $6 + 2.5 - 2.7$

☒ d $6 - 2.7$

3 The mathematical expression that represents "Multiply 1.5 by 1.2, then subtract 0.5" is

☐ a $1.5 + 1.2 \times 0.5$

☐ b $0.5 - 1.5 \times 1.2$

☒ c $1.5 \times 1.2 - 0.5$

☐ d $0.5 \times 1.2 - 0.5$

4 The mathematical expression " $1.2 + 2.5 \div 0.5$ " expresses

☐ a add 1.2 and 2.5, then divide by 0.5

☒ b divide 2.5 by 0.5, then add 1.2

☐ c add 0.5 and 1.2, then divide by 2.5

☐ d divide 0.5 by 2.5, then add 1.2

5 $1.3 + 0.3 - 0.2 \times 2.5 =$

☐ a $1.3 + 0.1 \times 2.5$

☐ b $2.6 - 0.1 \times 2.5$

☒ c $1.3 + 0.3 - 0.5$

☐ d $1.3 + 0.3 - 0.05$

6 The pattern rule of (11 , 22 , 33 , 44 , 55 , 66) is

☒ a $n + 11$

☐ b $n - 11$

☐ c $n \times 11$

☐ d $n \div 11$

7 The next number in the pattern (1 , 3 , 5 , 7 , 9 , 11 ,) is

☐ a 20

☐ b 15

☒ c 13

☐ d 22

8 $n \times 0.2$ is the rule of

☐ a 2 , 2.2 , 2.4 , 2.6 , 2.8 ,

☒ b 2 , 0.4 , 0.08 , 0.016 ,

☐ c 20 , 10 , 5 , 2.5 , 1.25 ,

☐ d 8 , 7.8 , 7.6 , 7.4 , 7.2 , 7 ,

9 $[2 \times (4 + 0.5) - 4.5] \div 4.5 =$

☐ a 0

☒ b 1

☐ c 9

☐ d 10

10 The rule of the following pattern is

☐ a $n \times 3 - 1$

☐ b $n \times 2 + 3$

☒ c $n \times 3 + 1$

☐ d $n + 1 \times 3$

Input	Output
2	7
4	13
6	19
8	25

Second: Complete the following:

- 1) $45 \times 2 + 3 \times 3 = \dots\dots 99$
- 2) $4.5 + [2 \times (5 - 4) - 1] = \dots\dots 5.5$
- 3) 2, 2, 4, 6, 10, 16, $\dots\dots 26 \dots\dots 42$
- 4) 3, 6, 9, 12, 15, $\dots\dots 18 \dots\dots 21$
- 5) $12.5 + 2.5 \times 1.4 - 6 = \dots\dots 10$

Third: For each problem, write an expression that matches the clues. Then, evaluate the expression:

- 1) Subtract 2.1 from 3.62, then multiply by 3.
 $(3.62 - 2.1) \times 3 = 1.52 \times 3 = 4.56$

- 2) Divide 85 by 0.5, then add 136.7.
 $85 \div 0.5 + 136.7 = 170 + 136.7 = 306.7$

Fourth: Using the given information, list the first five numbers in the pattern:

- 1) Starting number: 2 Rule: $n + 2.5$
 $2 \dots\dots 4.5 \dots\dots 7 \dots\dots 9.5 \dots\dots 12$
- 2) Starting number: 5 Rule: $n \times 2 - 2.5$
 $5 \dots\dots 7.5 \dots\dots 12.5 \dots\dots 22.5 \dots\dots 42.5$
- 3) Starting number: 40 Rule: $n \div 0.2$
 $40 \dots\dots 200 \dots\dots 1,000 \dots\dots 5,000 \dots\dots 25,000$

Fifth: Answer the following:

Monir travels 38.7 kilometers by bicycle in two hours. If he cycles at the same rate all the time, how many meters does he travel per minute?

$$38,700 \div 120 = 322.5 \text{ m}$$

Accumulative Assessments

on Units 1- 6

Assessment 1

First: Complete the following:

- 1 **0.38** + 0.62 = 1
- 2 **7** X 1,000 = 7,000
- 3 $4.2 \times 10 - 8.2 =$ **33.8**
- 4 If $X + 15.2 = 14.5 + 15.5$, then $X =$.. **14.8** ..

Second: Choose the correct answer:

- 1 $6 + c = 2.1$ is called
☒ a equation ☐ b expression ☐ c multiplication ☐ d division

- 2 The multiplication problem that expresses the corresponding model is

$$\begin{array}{r} 800 \quad 7 \\ 4 \overline{) } \end{array}$$

- ☒ a 4×870 ☒ b 4×807 ☐ c 4×780 ☐ d 4×708
- 3 $1,001 \times 25 =$
☐ a 2,525 ☒ b 25,025 ☐ c 250,025 ☐ d 5,225
- 4 $2.51 \times$ = 0.0251
☐ a 0.1 ☒ b 0.01 ☐ c 0.001 ☐ d 100

Third: Match:

- | | |
|--------------------------------------|--|
| 1 The difference between 5.5 and 3.7 | <input checked="" type="radio"/> a $3.7 + 5.5 = y$ |
| 2 The sum of 5.5 and 3.7 | <input checked="" type="radio"/> b $3.7 + a = 5.5$ |
| 3 3.7 plus a number equals 5.5 | <input checked="" type="radio"/> c $m - 3.5 = 3.7$ |
| 4 5.5 minus a number equals 3.7 | <input checked="" type="radio"/> d $5.5 - 3.7 = x$ |
| 5 a number minus 3.5 equals 3.7 | <input checked="" type="radio"/> e $5.5 - n = 3.7$ |

Fourth: Answer the following:

- 1 Write the rule by finding the missing values in the tables:

Rule: $n + 3$

Input	Output
39	13
33	11
27	9
21	7
15	5

- 2 Find 18.2×2.8 : **50.96**

- 3 While dividing a number by 3, Ahmed got a quotient of 7 and a remainder of 2.

What is the number? **23**

Assessment 2

First: Complete the following:

- 1 $4.8 \div 6 \times 0.5 = \dots$ **0.4** 2 If $n = 2 \times 2 \times 7$ then, $n = \dots$ **28**

- 3 If $a \times 9 = 36$, then $a = \dots$ **4**

- 4 **70.**

40	5
2,800	350
5	25

Second: Choose the correct answer:

- 1 $k - 3.21 = 5$, then $k =$

a $5 - 3.21$

b $5 + 3.21$

c 2

d 1.23

- 2 The greatest common factor of 21 and 7 is

a 7

b 21

c 28

d 14

Accumulative Assessments on Units 1- 6

3 $18 \div 3 = 6$ R

a 0

b 5

c 2

d 15

4 $1.5 + n$ is the rule of

a 2.5, 3.5, 4.5, 5.5, 6.5, ...

b 2, 3.5, 5, 6.5, 8, ...

c 4, 4.5, 5, 5.5, 6, 6.5, ...

d 2, 4.5, 7, 9.5, 12, 14.5, ...

Third: Match:

1 $4.8 \div 0.2 \times 0.4 + 1.2$

2 $4.8 \div 0.2 \times (0.4 + 1.2)$

3 $4.8 \div (0.2 \times 0.4) + 1.2$

4 $4.8 \div [(0.2 \times 0.4) + 1.2]$

a 61.2

b 3.75

c 10.8

d 38.4

Fourth: Answer the following:

1 Write the rule by finding the missing values in the tables:

Rule: $(n + 3)$

Input	Output
5	8
7	10
9	12
11	14
13	16

2 $5,262 \div 50$

(Using the standard algorithm)

105.24

3 Ali bought 24 boxes of soft drinks for 115 LE each. How much money did Ali pay?

All paid = $24 \times 115 = 2,760$ L.E

Final Revision

First: Choose the correct answer:

- 1 Seven milliard, fifty thousand and seven hundredths =
(7,050.07 or 7,000,050.07 or 7,000,050,000.07 or 7,000,050,000,.07)
- 2 The place value of 5 in 528,239.247 is
(Hundred Millions or Hundred Thousands or Hundreds or Hundredths)
- 3 $4\frac{45}{100} =$. (4.45 or 44 or 4.045 or 45.4)
- 4 $2.053 =$. ($20\frac{53}{100}$ or $205\frac{3}{10}$ or $2\frac{53}{1000}$ or $\frac{753}{1000}$)
- 5 4 million = Ten Thousand (400 or 4,000 or 40,000 or 400,000)
- 6 6 hundredths = . (6 or 0.60 or 0.060 or 0.006)
- 7 6 tenths, 9 thousandths = . (0.609 or 0.069 or 6.009 or 0.906)
- 8 Five thousand, two hundred and twenty-three thousandths =
(5,200.230 or 5,200. 23 or 520.023 or 5,200.023)
- 9 In, the place value of 5 is Hundredths.
(500.46 or 46.005 or 40.056 or 46,500)
- 10 The digit that represents the Thousandths in 4,568.178 is .
(1 or 7 or 8 or 4)
- 11 The value of increased when multiplying by 10 to 25.26.
(25.26 or 252.6 or 2.526 or 2,526)
- 12 The value of decreased when dividing by 10 to 0.026.
(0.026 or 0.26 or 2.6 or 26)
- 13 X 10 = 258 (2580 or 258 or 25.8 or 2.58)
- 14 45 X 10 = . (450 or 0.45 or 4.5 or 40.5)
- 15 $8.05 \div 10 =$ (805 or 8.5 or 80.5 or 0.805)

Final Revision

- 16 When all digits of a number move one place to the left, its value _____ .
(decreases or **increases** or does not change or other)
- 17 When all digits of a number move one place to the _____ its value decreases.
(**right** or left or other)
- 18 $23 + 0.02 + 0.003 =$ _____. (2,302.00 or 2,323 or **23.023** or 23.23)
- 19 $824.12 =$ _____. ($824+1+2$ or $824+12$ or **$824+0.12$** or $800+200+4+10+2$)
- 20 When 56.73 is multiplied by 10, the value of the digit 7 _____ .
(Does not change or **increases from 0.7 to 7** or increases from 70 to 700 or decreases from 0.7 to 0.07)
- 21 What would the number 3.263 become if it were increased by a factor of 10?
(3.263 or 0.3263 or 326.3 or **32.63**)
- 22 $400 + 50 + 0.2 + 0.004 =$ _____. (450.24 or 450.024 or **450.204** or 45.204)
- 23 $85 \div 10 =$ _____. (**8.5** or 0.85 or 0.085 or 850)
- 24 $34 \times$ _____ $= 3400$ (**100** or 1000 or 10 or 1)
- 25 $56.73 <$ _____. (56.69 or **56.8** or 56.075 or 56.729)
- 26 0.32×10 $3.2 \div 10$ (< or = or > or \leq)
- 27 $56 <$ _____ < 57 (562 or 57.3 or 5.6 or **56.02**)
- 28 _____ ≈ 2.5 (To the nearest 0.1) (2.445 or **2.456** or 0.536 or 2.05)
- 29 $56.298 \approx 56.30$ (To the nearest _____. (100 or 10 or **0.01** or whole number)
- 30 $381.657 \approx$ _____ (to the nearest Hundredth)
(381.667 or 400 or **381.66** or 381.60)
- 31 59.16 59.6 (< or > or = or otherwise)
- 32 The smallest number in the following is _____.
(40.0 or 39.210 or **39.02** or 39.2)

33 $0.174 \approx 0.17$ to the nearest _____.

(Tenth or **Hundredth** or Hundred or Thousandth)

34 $45 + 0.5$ _____ $450 + 0.05$ ($<$ or $>$ or $=$ or \leq)

35 $0.300 =$ _____ . (**3 tenths** or 300/100 or 30/10 or 3/100)

36 _____ ≈ 75.3 (To the nearest Tenth)

(75.03 or 75.39 or 750.3 or **75.34**)

37 $78.098 \approx$ _____ . (To the nearest whole number) (78.1 or **78** or 79 or 7)

38 $4,000 + 40 + 0.4 + 0.04 =$ _____ .

(**4,040.44** or 44.44 or 444.04 or 4,400.40)

39 _____ ≈ 75.60 (To the nearest Hundredth)

(75.694 or 75.607 or **75.599** or 75.697)

40 4 Tenths + 3 Thousandths = _____ Thousandths.

(0.403 or 7 or 43 or **403**)

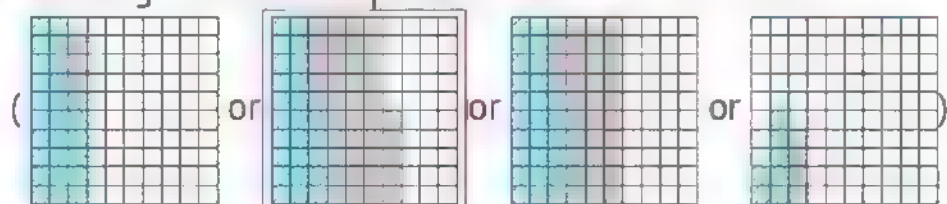
41 $0.256 +$ _____ $= 1$

(0.854 or 1.744 or 0.8 or **0.744**)

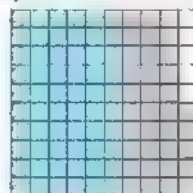
42 $5.25 + 32.7 =$ _____ .

(37.92 or 8.52 or 85.2 or **37.95**)

43 The model representing the addition problem $0.25 + 0.4$ is _____ .



44 The addition problem that represents the opposite model is _____ .



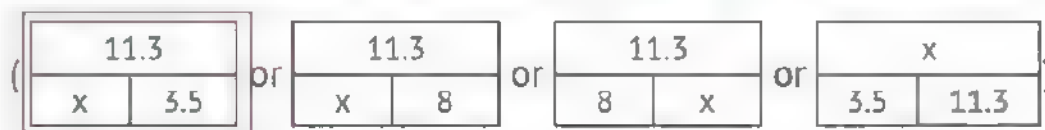
($0.58 + 3.7$ or $5.8 + 0.37$ or $5.8 + 3.7$ or **$0.58 + 0.37$**)

45 The benchmark decimal closest to 2.01 is _____ .

(1 or 1.5 or **2** or 2.5)

Final Revision

- 46 The estimate of $78.089 - 5.247$ using rounding to the nearest 0.01 strategy is _____.
(72.84 or 72.842 or 72.9 or 65)
- 47 $12.78 - \text{_____} = 8.8$
(3.98 or 21.58 or 11.9 or 13.66)
- 48 $7.15 - 2.6 = \text{_____}$.
(4.55 or 9.75 or 6.09 or 7.41)
- 49 $1 - \text{_____} = 0.47$
(1.47 or 1.53 or 0.53 or 0.47)
- 50 $8 - 0.45 = \text{_____}$.
(8.45 or 8.55 or 7.45 or 7.55)
- 51 The sum of 462 and 11.2 has _____ decimal place(s).
(1 or 2 or 3 or 0)
- 52 the composite number in the following numbers is _____.
(7 or 13 or 15 or 5)
- 53 $18.58 = \text{_____}$ (To the nearest whole number)
(59 or 19 or 18 or 18.6)
- 54 $20 + 0.07 + 0.008 = \text{_____}$.
(20.078 or 20.78 or 20.708 or 20.80)
- 55 $59.16 \text{ _____ } 59.6$
(< or > or = or otherwise)
- 56 $45 + y - 2.5$ is a/an .. _____.
(variable or mathematical expression or equation or other)
- 57 "Ahmed sleeps 7 hours a day." is a/an
(variable or mathematical expression or equation or other)
- 58 In the equation $45 - m = 25$. If 45 represents the number of students in one of the classes and 25 represents the number of girls in this class, then the variable m represents the
(number of girls or number of boys or number of students or number of teachers)
- 59 The bar model that expresses the equation $x + 3.5 = 11.3$ is _____.



60 Using the opposite bar model: $x = \dots\dots\dots$

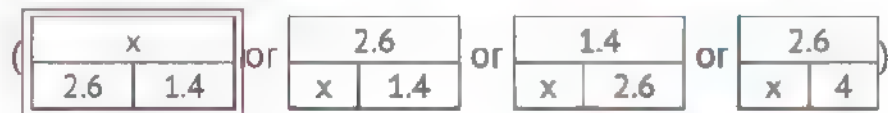
	3.16
x	2.8

(2.8 or 1.8 or 1.64 or 0.36)

61 The equation that represents the sum of 6.35 and 3.14 is _____.

($m = 6.35 + 3.14$ or $m - 3.14 = 6.35$ or $m - 6.35 = 3.14$ or $m = 6.35 - 3.14$)

62 The bar model that expresses the equation $x - 2.6 = 1.4$ is _____.



63 _____ is a prime number.

(51 or 52 or 57 or 59)

64 _____ is a factor of 24.

(14 or 18 or 17 or 12)

65 The numbers 2, 3, 5, 7 are _____ numbers.

(even or odd or prime or composite)

66 The smallest prime number formed from two digits is _____.

(2 or 10 or 11 or 12)

67 The greatest common factor of any two prime numbers is _____.

(The largest number or the smallest number or one or zero)

68 The GCF for the pair (30 , 25) is _____.

(25 or 5 or 10 or 3)

69 Subtract 7.4 from 8.6 written _____.

($7.4 - 8.6$ or $8.6 - 7.4$ or 8.6×7.4 or $8.6 \div 7.4$)

70 _____ is a factor of the number 35

(2 or 3 or 5 or 6)

71 Which of the following is a common multiple of 9 and 6?

(3 or 12 or 27 or 18)

72 The only even prime number is _____

(2 or 0 or 3 or 10)

73 The number _____ is the common factor of all numbers.

(0 or 1 or 2 or 3)

Final Revision

74 From the multiples of 7 is (15 or 22 or **35** or 4)

75 The greatest common factor of 21 and 7 is (**7** or 21 or 28 or 14)

76 21 is one of the multiples of the number (2 or 5 or 6 or **7**)

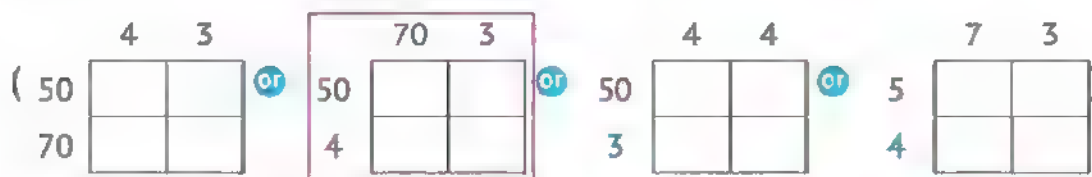
77 5 kg = gm. (50 or 500 or **5,000** or 0.005)

78 $1,001 \times 25 =$ (2,525 or **25,025** or 250,025 or 5,225)

79 The multiplication problem that expresses the corresponding area model is
 $5 \begin{array}{|c|c|c|} \hline 100 & 80 & 3 \\ \hline \hline 500 & 400 & 15 \\ \hline \end{array}$ (5×915 or **5×183** or 5×143 or 5×12)

80 The multiplication problem that expresses the corresponding model is
 $4 \begin{array}{|c|c|} \hline 800 & 7 \\ \hline \hline & \\ \hline \end{array}$
 (4×870 or **4×807** or 4×780 or 4×708)

81 The area model that represents $(50 \times 70) + (50 \times 3) + (4 \times 70) + (4 \times 3)$ is



82 $(25 \times 2) + (25 \times 7) = 25 \times$ (**9** or 27 or 72 or 14)

83 $7 \times (500 + 4) =$ (7×54 or **7×504** or $7 \times 5,004$ or 7×9)

84 The problem that represents the opposite area model is
 $60 \begin{array}{|c|c|c|} \hline 5,000 & 400 & 3 \\ \hline \hline 7 & & \\ \hline \end{array}$
 (**$5,403 \times 67$** or $5,043 \times 67$ or $5,430 \times 67$ or 543×67)

85 $600 \times 400 =$ (**240,000** or 24,000 or 2,400 or 240)

86 60 is twice (**30** or 60 or 120 or 10)

87 $(4 \times 85) + (2 \times 85) =$ $\times 85$ (24 or 42 or 8 or **6**)

88 30 days = weeks, days
 (4 weeks, 28 days or weeks, 8 days or **4 weeks, 2 days** or 28 weeks, 2 days)

89 $25 \times 7,561 =$ (188,025 or 177,005 or 175,705 or **189,025**)

90 $2 \frac{1}{2}$ days = _____ hours (**60** or 50 or 48 or 24)

91 876×72 is closer to _____ (56,000 or 5,600 or **63,000** or 72,000)

92 $75 \times 25 = [70 \times 20] + [70 \times 5] + [5 \times 20] + [\dots]$
(**5 x 5** or 5 x 50 or 50 x 5 or 50 x 50)

93 $6 \times 65 = (6 \times 5) + (6 \times \dots)$ (6 or **60** or 0.6 or 600)

94 The quotient
in the opposite model is
(435 or 4,305 or 4,350 or **4,035**)

	4,000	30	5
63	254,205	2,205	315
	- 254,205	- 1,890	- 315
	220,5	315	0

95 If $26 \times 155 + 20 = 4,050$, then the remainder of $4,050 \div 26$ is
(**20** or 26 or 155 or 4,050)

96 $4,444 \div 44 =$ (1111 or 110 or **101** or 1001)

97 The dividend in the division $24 \div 6 = 4$ is (**24** or 6 or 4 or 0)

98 The quotient in
the following division model
is _____
(5,248 or 12 or 4 or **437**)

	0437
12	5,248
	48
	44
	- 36
	88
	- 84
	4

99 $24,000 \div 600 =$ (4 or **40** or 400 or 4,000)

100 $2,215 \div 15 = 147 \text{ R } \dots$ (0 or 5 or **10** or 15)

101 $29 \div 4 = 7 \text{ R } \dots$ (0 or **1** or 2 or 3)

102 [Quotient x Divisor] + Remainder =
(Divisor or Quotient or Remainder or **Dividend**)

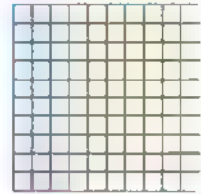
103 1, 1, 2, 3, 5, _____ in the same pattern (15 or 6 or 7 or **8**)

Final Revision

104 $654 \div \dots\dots\dots = 654$ (10 or 100 or **1** or 0)

105 Any number dividing by itself (except zero) equals
(0 or **1** or itself or undefined)

106 The multiplication problem that represents the opposite model is



(**0.3×0.9** or 3×9 or 0.3×9 or 3×0.9)

107 If $12 \times 45 = 540$, then $\dots \times 0.45 = 540$ (1.2 or 0.12 or 120 or **1,200**)

108 The product of 0.01×0.1 has decimal places. (1 or 2 or **3** or 4)

109 $0.09 \times 0.3 = \dots\dots\dots$ (0.27 or **0.027** or 2.7 or 0.0027)

110 $7,641 \div 1,000 = \dots\dots\dots$ (**7.641** or 76.41 or 764.1 or 1)

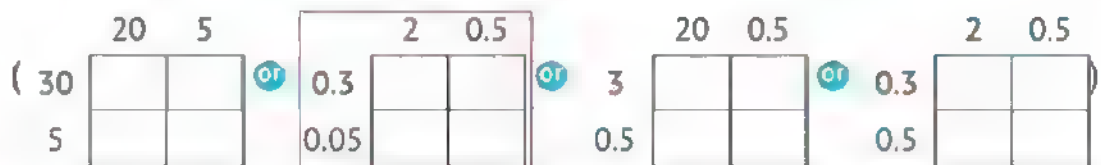
111 4,632 meters = kilometers (**4.632** or 46.32 or 463.2 or 4632)

112 78.5 m = cm (785 or 7.85 or **7,850** or 0.785)

113 kg = 460 gm (**0.46** or 460,000 or 4.60 or 4,600)

114 5.2 L = mL (0.052 or 0.52 or 52 or **5,200**)

115 The area model that expresses 2.5×0.35 is



116 Adding 13.5 and 2.5 then divide the sum by 4 is written as

($13.5 + 2.5 \div 4$ or **$[13.5 + 2.5] \div 4$** or $13.5 + [2.5 \div 4]$ or $13.5 - [2.5 \div 4]$)

117 There are grams in 10 kilograms. (10 or 100 or 1,000 or **10,000**)

118 $0.2 \times 1.12 = \dots\dots\dots$ (224 or 22.4 or 2.24 or **0.224**)

119 $45 - 2.1 \times 4.1 + 32 = \dots\dots\dots$ (**68.39** or 207.89 or 6.839 or 20.789)

120 $5.6 + 0.5 - 0.4 \times 1.5 = \dots\dots\dots$
($6.1 - 0.6$ or $5.6 + 0.1 \times 1.5$ or **$5.6 + 0.5 - 0.6$** or $6.1 - 0.4 \times 1.5$)

121 The pattern rule of (15 , 21 , 27 , 33 , 39 , 45 , ... is .

($n + 6$ or $n - 6$ or $n \times 6$ or $n \div 6$)

122 The rule of the following pattern is

Input	Output
5	11
6	13
7	15

($n \times 2 + 1$ or $(n + 1) \times 2$ or $n + 1 \times 2$ or $(n + 2) \times 1$)

123 If the input is 5 and the output is 0.5, then the rule is .

($n \times 10$ or $n - 10$ or $n \div 10$ or $n + 10$)

124 Pattern rule of 2 , 4 , 6 , 8 , ... is: .

(n or $n + 4$ or $n + 2$ or $n + 1$)

125 An employee works 480 minutes a day. Calculate the number of minutes an employee works in 7 days .

($480 - 7$ or $480 \div 7$ or 480×7 or $480 + 7$)

126 The variable in equation $47.8 = X + 32$ is

(15.8 or X or 47.8 or 32)

127 $2.9 : 0.3 =$.

($29 : 3$ or $2.9 : 3$ or $29 : 3$ or $29 : 30$)

128 Which of the following is an equation?

(34×12 or $89 - 34$ or $3.6 + 1.6 = x$ or $14.2 - 3.574$)

Second: Complete the following:

1 In 5,350.68 the digit 6 is in the **Tenths** place and its value is **..0.6..** .

2 9,003.36 (In word form): **Nine thousand three and thirty-six hundredths**

3 $0.523 =$ **3** Thousandths, **2** Hundredths, **5** Tenths

4 The value of 12.7 decreased when dividing by 10 to **1.27** .

5 **27** $\div 10 = 2.7$

6 2,409.008 (decomposed): **2,000 + 400 + 9 + 0.008**

7 $30 + 4 + 0.6 + 0.02 =$ **34.62** [in standard form]

8 $45.012 = 45 +$ **..0.012..** .

Final Revision

- 9 $45.269 \approx \dots\dots\dots 45.27 \dots\dots\dots$ (To the nearest 0.01)
 - 10 $0.909 \approx 1$ (To the nearest **whole number**)
 - 11 $65.25 \approx \dots\dots\dots 65 \dots\dots\dots$ (To the nearest whole number)
 - 12 3 Tenths + 28 Thousandths = **328** Thousandths
 - 13 97 thousandths - 49 thousandths = **48 thousandths** .
 - 14 4 Hundredths + 35 Thousandths = **75** Thousandths.
 - 15 The benchmark decimal closest to 1.57 is **1.5** .
 - 16 $6,966.34 = 6,000 + 900 + 0.3 + 60 + 0.04 + 6$
 - 17 If $e = 7.102$, then $e - 5.102 = \dots\dots\dots 2 \dots\dots\dots$
 - 18 Using the equation $f + 0.28 = 9.07$,
fill the model then find the value of $f = \dots\dots\dots 8.79 \dots\dots\dots$
- | | |
|-------------|-------------|
| 9.07 | |
| f | 0.28 |
- 19 **2** is the smallest prime number.
 - 20 Zero is a common **Multiple** of all numbers
 - 21 One is a common **Factor** of all numbers
 - 22 **3** is the smallest odd prime number.
 - 23 **Prime number** is a number greater than one and has only two factors.
 - 24 The **smallest 2-digit prime number** is **11** .
 - 25 The prime number whose factors sum is 12 is **11** .
 - 26 The multiples of 6 between 20 and 30 are/ is **24** .
 - 27 The number whose prime factors 2 , 2 , 3 , 3 is **36** .
 - 28 The GCF of 8 and 12 is **4** .
 - 29 The GCF of 9 and 20 is **1** .
 - 30 The LCM of any two prime numbers is **Their product** .
 - 31 The GCF of any two prime numbers is **1** .
 - 32 The common multiple of all numbers is **0** .
 - 33 The LCM of 5 and 3 is **15** .

- 34 16 days \approx **2**..... weeks “to the nearest week”
- 35 43 months \approx **4**..... year. (To the nearest year)
- 36 5 cm =**50**..... mm
- 37 In the division equation $29 \div 3 = 9 \text{ R}2$ the remainder is**2**.....
- 38 If $25 \times 25 = 625$, then $626 \div 25 = 25 \text{ R} \dots\dots$ **1**.....
- 39 Quotient \times divisor + remainder = **Dividend**.
- 40 Million \times zero **<** 7.2×1 [using $>$, $<$ or $=$]
- 41 $0.75 \times 100 = \dots\dots$ **75**.....
- 42 $4,258 \text{ cm} = \dots\dots$ **4,258**..... $\times \dots\dots$ **0.01**..... =**42.58**..... m
- 43 $12.5 \div \dots\dots$ **0.1**..... = $12.5 \times \dots\dots$ **10**..... = 125
- 44 The product of 689×21 is closer to the product of **700** \times **20** ..
- 45 $0.25 \div \dots\dots$ **0.01**..... = 25
- 46**20**..... $\div 100 = 0.2$
- 47 The product of $13.5 \times 2.2 = \dots\dots$ **29.7**.....
- 48 $50 \times 120 = \dots\dots$ **60**..... hundreds
- 49 $(40 \times 30) + (40 \times 8) + (7 \times 30) + (7 \times 8) = \dots\dots$ **47**..... \times **38**.....
- 50 $137 \text{ cm} = \dots\dots$ **1.37**..... m
- 51 The Ones digit of the product of $4,287 \times 53$ will be**1**.....
- 52**632**..... $\div 100 = 6.32$
- 53 $5.6 \times \dots\dots$ **1,000**..... = $56 \div 0.01$
- 54 If $326 \times 7 = 2,282$, then $0.326 \times 7 = \dots\dots$ **2.282**.....
- 55 $0.008 \text{ km} = \dots\dots$ **8**..... m
- 56 There are**14,000**..... milliliters in 14 liters.
- 57 $18 \text{ kg} = \dots\dots$ **18,000**..... g.
- 58 63 Hundredths $\times 5 = \dots\dots$ **3.15**.....
- 59 $0 \div 51,362 = \dots\dots$ **0**.....

Final Revision

- 60 $1.5 + 2.5 + 0.7 = \dots\dots\dots 4.7 \dots\dots$.
- 61 $2.5 \times 8 \div 0.5 = \dots\dots\dots 40 \dots\dots$.
- 62 $[(20.5 - 10) \times 0.3] \div 0.1 = \dots\dots\dots 31.5 \dots\dots$.
- 63 2, 5, 8, 11, 14, 17, $\dots\dots 20 \dots\dots$, $\dots\dots 23 \dots\dots$ Rule: $\dots\dots n + 3 \dots\dots$.
- 64 3, 8, 13, 18, $\dots\dots 23 \dots\dots$, $\dots\dots 28 \dots\dots$ Rule: $\dots\dots n + 5 \dots\dots$.

Third: Answer the following:

- 1 Mahmoud is planning a trip from Cairo to El Fayoum. He will travel 147.72 kilometers. Round the distance to the nearest whole number.

$\dots\dots\dots 148 \text{ km} \dots\dots\dots$

- 2 Tamer drinks 1.5 liters of water per day. If he drinks 0.5 liters of water in the morning and 0.7 liters at lunch, how many liters of water does he drink in the evening?

$\dots\dots\dots 1.5 - (0.5 + 0.7) = 0.3 \text{ L} \dots\dots\dots$

- 3 Emad had 56.5 pounds. He bought a pen for 12.25 pounds and a notebook for 15.5 pounds. How much money does Emad have left?

$\dots\dots\dots 56.5 - (12.25 + 15.5) = 28.75 \text{ pounds} \dots\dots\dots$

- 4 A classroom in a school has 21 girls and 15 boys.

How many students are there in this class? (Use the bar model)

$\dots\dots\dots X = 21 + 15 = 36 \text{ students} \dots\dots\dots$

X	
21	15

- 5 Two numbers their sum is 255 and one of them is 107.5.

What is the other number? (Use the bar model)

$\dots\dots\dots x = 255 - 107.5 = 147.5 \dots\dots\dots$

255	
x	107.5

- 6 Fill in the bar model, then find the solution:

$$2.456 + x = 7.382$$

$$x = 7.382 - 2.456 = 4.926$$

7.382	
x	2.456

- 7 Fill in the bar model, then find the solution:

$$w = 9.2 - 5.025$$

$$w = 9.2 - 5.025 = 4.175$$

9.2	
w	5.025

- 8 Adel goes to the club every 3 days to train for football, and his friend Ahmed goes to the same club every 4 days to train for volleyball. If they went to the club today, after how many days do the two friends meet?

after 12 days

- 9 Omar owns 12 buses to transport tourists, each bus can carry 25 passengers. How many passengers can Omar carry each day if each bus is full?

$$12 \times 25 = 300 \text{ passengers}$$

- 10 A rectangular piece of land has a length of 256 meters, and a width of 62 meters. Find its area.

$$\text{area} = 256 \times 62 = 15,872 \text{ m}^2$$

- 11 Mona saves 1,023 pounds every month. What is the total amount that Mona saves in 18 months?

$$1,023 \times 18 = 18,414 \text{ pounds}$$

Final Revision

- 12 A teacher has 96 books and wants to distribute them equally among 4 students. How many books will each student get?

$$96 \div 4 = 24 \text{ books}$$

- 13 Murad bought 76 candies and distributed them equally among 6 of her friends. How many candies will each friend get? Will there be any candy left with Murad?

$$76 \div 6 = 12 \text{ R}4$$

- 14 A box has 256 balls. How many balls are in eight identical boxes?

$$256 \times 8 = 2,048 \text{ balls}$$

- 15 The owner of a juice shop owns 2,880 paper cups. If he uses them within 12 days equally, how many cups did he use every day?

$$2,880 \div 12 = 240 \text{ cups}$$

- 16 A travel agency wants to divide 480 passengers using minibuses, each one has 15 seats. How many minibuses can the travel agency use?

$$480 \div 15 = 32 \text{ minibuses}$$

- 17 Adel bought a car for 69,380 pounds and paid 65,940 pounds in advance of, then he will pay the rest over four monthly installments .

What is the value of the monthly installment?

$$\text{the left money} = 69,380 - 65,940 = 3,440 \text{ pounds}$$

$$\text{Value of each installment} = 3,440 \div 4 = 860 \text{ pounds}$$

- 18 Use the distributive property of multiplication and the area model to find the product of 26×43 .

$$(20 \times 40) + (20 \times 3) + (6 \times 40) + (6 \times 3) = 1,118$$

- 19 Arrange the following in an ascending order:

1.351 , 1.135 , 1.531 , 1.315 , 3.135

1.135 , 1.315 , 1.351 , 1.531 , 3.135

- 20 The weight of Farida is 45.235 kg, and the weight of Mazen is 52.012 kg, Find their weight together

$$45.235 + 52.012 = 97.247 \text{ kg}$$

- 21 Hanaa has 200 pounds. She wants to buy a pair of shoes for 99.8 L.E a bag for 45.75 L.E. and a dress for 70.25 L.E
Can she buy all she wants? why?

$$99.8 + 45.75 + 70.25 = 215.8 \text{ pounds} \quad \text{she can not}$$

- 22 $[72.12 + 2.71] \times 10 = \dots 748.3 \dots$

- 23 Find the common factors and GCF of 36 and 24:

- Factor of 36: 1 , 2 , 3 , 4 , 6 , 9 , 12 , 18 , 36

- Factor of 24: 1 , 2 , 3 , 4 , 6 , 8 , 12 , 24

- Common factors: 1 , 2 , 3 , 4 , 6 , 12

- GCF = 12

- 24 Marwa saved 125 pounds ,Ahmed saved 10 times as Marwa saved, Mariam saved 6 times as Marwa saved, how much money did they saved altogether?

$$\text{Ahmed} = 125 \times 10 = 1,250 \text{ pounds} \quad \text{Mariam} = 125 \times 6 = 750$$

$$\text{Total} = 1,250 + 750 + 125 = 2,125$$

Final Revision

- 25 Use the mathematical order of operations to evaluate the following expression.

$$7 + 3 \times [5 - (3 \times 1)] - 12 \div 10$$

$$7 + 3 \times 2 - 12 \div 10 = 11.8$$

- 26 Using the given Rule, list the first five numbers in the pattern,

Starting number: 5, Rule: $n + 5$: **5** , **10** , **15** , **20** , **25** .

- 27 Farida bought 20 meters of fabric. If the price of one meter is 65.5 pounds, what is the price of the whole fabric?

$$20 \times 65.5 = 1,310 \text{ m}$$

- 28 Mona had 95.5 LE, she spent 35.75 LE. Find the remainder with her

$$\text{remainder} = 95.5 - 35.75 = 59.75 \text{ pounds}$$

- 29 Use the mathematical order of operations to evaluate the following expression.

$$3.3 \div 3 \times 10 - 10$$

$$1$$

- 30 Write the expression : Subtract 2.6 from 9.8, then multiply the result by 0.01

$$(9.8 - 2.6) \times 0.01 = 0.072$$

- 31 Decompose the number 285.285 using the expanded form.

$$200 + 80 + 5 + 0.2 + 0.08 + 0.005$$

- 32 Order from the least to the greatest: 0.65 km, 590 meters, 0.8 km, 1 km

$$590 \text{ m.}, 0.65 \text{ km.}, 0.8 \text{ km.}, 1 \text{ km}$$

33 Solve the equation $K + 2.4 = 7.8$

$$k = 5.4$$

34 Use the opposite table to discover the rule,
then find the missing numbers in the table.

The rule is:

$$n + 1.5$$

Input	Output
6	7.5
10	11.5
14	15.5
8.5	10
12.5	13.75
16	17.5

Model Exams

Cairo Governorate - Al-Basatin Educational Zone



First: Choose the correct answer:

- 1 $0.6 =$ **0.60** . (0.60 or 600 or 60 or 6)
- 2 The number whose all prime factors are 2, 3, and 5 is **30** .
(6 or 10 or 15 or 30)
- 3 $89.75 \times 100 =$ **8,975** . (8.975 or 897.5 or 8,975 or 89.750)
- 4 The smallest prime number is **2** . (0 or 1 or 2 or 3)
- 5 20.149 < 20.9 (< or > or = or ≥)
- 6 $0.5 \times 0.5 =$ **0.25** . (25 or 2.5 or 0.25 or 0.025)
- 7 If $25 \times 65 = 1,625$, then $0.25 \times 6.5 =$... **1.625** .
(162.5 or 16.25 or 1.625 or 0.1625)

Second: Complete the following:

- 1] $3 \text{ thousandths} + 82 \text{ hundredths} = \dots\dots 0.823 \dots$
- 2] $30 + 4 + 0.6 + 0.02 = \dots 34.62 \dots$
- 3] $9.99 + 9 = \dots\dots 18.99 \dots$
- 4] $142.6 \times 0.01 = \dots\dots 1.426 \dots$
- 5] $2.134 \text{ kg} = \dots 2,134 \dots \text{ gm}$
- 6] The common multiple of all numbers is $\dots\dots 0 \dots$
- 7] $20.46 \simeq \dots\dots 20 \dots$ (To nearest whole number)
- 8] The next number in the pattern (2, 5, 8, 11,...) is $\dots\dots 14 \dots$

Third: Choose the correct answer:

1 $\frac{453}{1,000} =$ **0.453** . (4.53 or 45.3 or **0.453** or 0.0453)

2 The value of the digit 8 in 3.587 is **0.08** . (0.8 or **0.08** or 0.008 or 8)

3 $4.2 + 3.467 =$ **7.667** . (43.267 or 12.667 or 1.267 or **7.667**)

4 If $K + 15 = 40.5$, then $K =$ **25.5** . (35.5 or 34.5 or **25.5** or 24.5)

5 Which of the following is an equation?

($50 + n$ or $0.35 - n$ or **$50 + n = 80$** or $45 \times n$)

6 $2.9 \div 0.3 =$ **$29 \div 3$** . ($29 \div 3$ or $2.9 \div 3$ or **$29 \div 3$** or $29 \div 30$)

7 $5 \times 124 = 5 \times (100 +$ **20** $+ 4)$ (500 or 514 or 24 or **20**)

Fourth: Answer the following:

1 Find the GCF and LCM of 12 and 18.

$12 =$ **$2 \times 2 \times 3$**

$18 =$ **$2 \times 3 \times 3$**

GCF = **$2 \times 3 = 6$**

LCM = **$2 \times 2 \times 3 \times 3 = 36$**

2 Solve: $12 + (4.6 - 2.6) \times 4$

$12 + (4.6 - 2.6) \times 4 = 12 + 2 \times 4 = 12 + 8 = 20$

3 Write the expression:

Subtract 2.6 from 9.8, then multiply the result by 0.01

$(9.8 - 2.6) \times 0.01 = 7.2 \times 0.01 = 0.072$

4 Ali walks 14 kilometers each day. If he walked for 120 days, how many kilometers would he walk?

The number of kilometers = $14 \times 120 = 1,680$ km



First: Choose the correct answer:

- 1 The value of the digit 6 in 2.651 is **0.6** . (0.6 or 0.06 or 0.006 or 6)
- 2 11 has **2** factor(s). (1 or 2 or 3 or 4)
- 3 If $h - 0.3 = 0.7$ then $h =$ **1** . (1 or 0.2 or 0.3 or 0.4)
- 4 $85.3 \times 0.1 =$ **8.53** . (8.53 or 0.853 or 853 or 85.03)
- 5 The rule of the pattern 2 , 4 , 8 , 16 , 32 , is **$n \times 2$** .
($n + 2$ or $n \times 2$ or $n - 2$ or $n \div 2$)
- 6 $12.76 \simeq$ **13** (to the nearest whole number) (12.7 or 13 or 21 or 13.8)
- 7 $18 + 0.04 + 0.007 =$ **18.047** . (18.47 or 18.74 or 18.074 or 18.047)

Second: Complete the following:

- 1 The place value of the digit 8 in 3.587 is **hundredths**
- 2 3 tenths + 7 hundredths = **0.37**
- 3 85, 80, 75, 70 , ... **65** ... (In the same pattern)
- 4 $29 \div 4 = 7R$ **1** .
- 5 30,000 mL = **30** L
- 6 The greatest common factor (GCF) of 8 and 12 is **4** .
- 7 $6 + (2.4 \times 10) =$ **30** .
- 8 From the opposite bar model, the value of $a =$ **30.3** .

	43.8
a	13.5

Third: Choose the correct answer:

- 1 $3.41 \times 100 =$ **341** . (0.341 or 3.41 or 34.1 or 341)
- 2 The product of 19×403 is closer to = .. **8,000** .
(80,000 or 8,000 or 800 or 80)

3] Which of the following is an equation?

(34×12 or $89 - 34$ or $3.6 + 1.6 = x$ or $14.2 - 3.574$)

4] $2.4 \div 0.4 = \dots\dots\dots 6 \dots\dots\dots$

(0.6 or 6 or 0.06 or 60)

5] Prime factors of 14 are **2 and 7.**

(1 and 14 or **2 and 7** or 3 and 7 or 2 and 14)

6] 3.19 31.9

(or $=$ or $>$ or \geq)

7] 4,632 meters = **4.632** kilometers

(**4.632** or 46.32 or 463.2 or 4632)

Fourth: Answer the following:

- 1] Maged ran 2.569 km on the first day, and 1.269 km on the second day.
What is the difference between the two distances?

The difference = $2.569 - 1.269 = 1.3$ km

2] Find the GCF and LCM for 12 and 18.

$12 = \dots \mathbf{2 \times 2 \times 3}$

$18 = \dots\dots\dots \mathbf{2 \times 3 \times 3}$

GCF = $\mathbf{2 \times 3 = 6}$

LCM = $\mathbf{2 \times 2 \times 3 \times 3 = 36}$

3] Decompose the number 285.285 using the expanded form.

$285.285 = 200 + 80 + 5 + 0.2 + 0.08 + 0.005$

4] If the price of a bottle of juice is 24.5 LE, what is the price of 100 bottles of the same juice?

The price of bottles = $24.5 \times 100 = 2,450$ LE

Giza Governorate - Imbaba Educational Zone



First: Choose the correct answer:

- 1 $12 \times 10 =$ **120** . (1.2 or **120** or 0.12 or 12)
- 2 The value of the digit "8" in 7.258 is **0.008** . (8 or 0.8 or 0.08 or **0.008**)
- 3 The smallest prime number is **2** . (0 or 1 or **2** or 3)
- 4 $\frac{158}{100} =$ **1.58** . (**1.58** or 1,580 or 15.8 or 0.158)
- 5 $50 \times$ **1,000** = 50,000 (10 or 100 or **1,000** or 10,000)
- 6 $6 \times 65 = (6 \times 5) + (6 \times$ **60**) (6 or **60** or 0.6 or 600)
- 7 If $4m = 24$ then $m =$ **6** . (**6** or 5 or 8 or 2)

Second: Complete the following:

- 1 800 grams =**0.8**..... kilograms
- 2 The common factor of all numbers is**1**.....
- 3 $0.854 \simeq$ **0.85**..... (to the nearest Hundredth)
- 4 If $K + 3.25 = 6.25$ then $K =$ **3** .
- 5 $23 \div 5 = 4$ R**3**.....
- 6 If $5 \times 24 = 120$, then $5 \times 2.4 =$ **12** .
- 7 $20 + 3 + 0.5 + 0.07 =$ **23.57** [in standard form]
- 8 $16.07 - 10.3 =$ **5.77**.....

Third: Choose the correct answer:

- 1 21 is one of the multiples of the number **7** . (2 or 5 or 6 or **7**)
- 2 The next number in the pattern: 2,5,8,11,14, is **17** . (15 or **17** or 19 or 16)
- 3 $1.5 \times 10 - 10.5 =$ **4.5** . (15 or 10 or 1.5 or **4.5**)

- 4 The divisor in the division $54 \div 9 = 6$ is **9** . (54 or **9** or 6 or 1)
- 5 The common multiple of all numbers is **0** . (**0** or 1 or 2 or 3)
- 6 $0 \div 142 = \dots\dots\dots$ **0** . (**0** or 1 or 142 or 2)
- 7 $20 \times 15 = \dots\dots$ **3** Hundreds (30 or 3000 or 300 or **3**)

Fourth: Answer the following:

- 1 Find the GCF for 9 and 12

$$9 = \dots\dots \mathbf{3 \times 3}$$

$$12 = \dots\dots\dots \mathbf{3 \times 2 \times 2}$$

$$\text{GCF} = \dots\dots\dots \mathbf{3}$$

$$\text{LCM} = \mathbf{3 \times 3 \times 2 \times 2 = 36}$$

- 2 Find the value of 1.2×32

$$\dots\dots\dots \mathbf{1.2 \times 32 = 38.4}$$

- 3 Mariam saved 75.8 pounds and her brother saved 24.2. Find the total sum they saved.

$$\dots\dots\dots \mathbf{\text{They saved} = 75.8 + 24.2 = 100 \text{ LE}}$$

- 4 Find the quotient: $144 \div 12$

$$\dots\dots\dots \mathbf{144 \div 12 = 12}$$

Giza Governorate - El Dokky Educational Zone



First: Choose the correct answer:

1 Which of the following represents an equation?

($3.6 + 2.1$ or $a + 3.1 = 5$ or $y + 7.5$ or $7.7 - x$)

2 The only even prime number is **2**.

(1 or 0 or **2** or 3)

3 $36 \div \dots\dots\dots 4 \dots\dots\dots = 9$

(**4** or 5 or 6 or 9)

4 The number four and forty-one thousandths in standard form is **4.041**.

(4.41 or 0.441 or **4.041** or 41.4)

5 The rule of the pattern 2, 5, 8, 11, is **$n + 3$** .

($n + 1$ or $n + 2$ or **$n + 3$** or $n + 4$)

6 **24** is a multiple of 3

(16 or 8 or 14 or **24**)

7 The LCM of 3 and 5 is **15**.

(8 or 3 or **15** or 1)

Second: Complete the following:

1 $129 \div 100 = \dots\dots\dots 1.29 \dots\dots\dots$

2 $5 \times 24 = 120$, then $0.5 \times 2.4 = \dots\dots\dots 1.2 \dots\dots\dots$

3 The value of the digit 7 in 5.371 is **0.07** .

4 $0.72 \div 0.04 = \dots\dots\dots 72 \dots\dots\dots \div \dots\dots\dots 4 \dots\dots\dots = \dots\dots\dots 18 \dots\dots\dots$

5 $9 \times 27 = [9 \times \dots\dots\dots 20 \dots\dots\dots] + [9 \times 7]$

6 $7 \text{ kg} = \dots\dots\dots 7,000 \dots\dots\dots \text{ grams}$

7 $4.208 = \dots\dots\dots 4 \dots\dots\dots + 0.2 + 0.008$

8 $8.639 \simeq \dots\dots\dots 8.64 \dots\dots\dots$ (to the nearest Hundredth)

Third: Choose the correct answer:

- 1 If $125 \times 5 = 625$, then $625 \div 5 = 125$ R **1** . (3 or **1** or 5 or 6)
- 2 $0.075 = 7.5 \times$ **0.01** . (1 or 0.1 or **0.01** or 0.001)
- 3 The number which its prime factors are 2 , 2 , 3 and 3 is **36** .
(6 or 4 or 9 or **36**)
- 4 3 hundredths + 5 hundredths = **8** hundredths (**8** or 80 or 35 or 15)
- 5 $20 \times 50 =$ **1,000** . (100 or **1,000** or 10,000 or 10)
- 6 $123 \div 123$ **>** 0×234 (= or < or **>** or \leq)
- 7 $8 + 14 \div 7 =$ **10** (7 or 8 or 9 or **10**)

Fourth: Answer the following: (Show your steps)

1 Find the GCF of 6 and 10

$$6 = \dots \mathbf{2 \times 3}$$

$$10 = \dots \mathbf{2 \times 5}$$

$$\text{GCF} = \mathbf{2}$$

$$\text{LCM} = \mathbf{2 \times 3 \times 5 = 30}$$

2 Find the quotient of: $0.35 \div 0.5$

$$\mathbf{0.35 \div 0.5 = 3.5 \div 5 = 0.7}$$

3 Ahmed bought 10 pens of the same type. If the price of one pen is 8.5 pounds, how much will Ahmed pay?

$$\dots \mathbf{Ahmed\ paid = 10 \times 8.5 = 85\ pounds} \dots$$

4 Order from the least to the greatest: 0.65 km, 590 meters, 0.8 km, 1 km

$$\mathbf{590\ m.,\ 0.65\ km.,\ 0.8\ km.,\ 1\ km.}$$



First: Choose the correct answer:

- 1 The value of the digit 8 in 5.018 is **0.008** (8 or 0.08 or **0.008** or 0.8)
- 2 357 cm = **3.57** m (0.357 or **3.57** or 357 or 35.7)
- 3 The rule of the pattern 2, 4, 6, 8, is **$n + 2$** .
(n or $n + 1$ or **$n + 2$** or $n + 3$)
- 4 The product of $23.9 \times 0.1 =$ **2.39** . (239 or 23.9 or **2.39** or 0.239)
- 5 The greatest common factor "GCF" of 10, 12 is **2** . (1 or **2** or 3 or 5)

Second: Complete the following:

- 1 $7.45 \simeq$ **7.5** "to the nearest Tenth"
- 2 The common factor of all numbers is **1** .
- 3 If $Y + 1.2 = 7.5$, then Y: **6.3** .
- 4 The least common multiple "LCM" of 2, 3 is **6** .
- 5 Twenty seven and five thousandths written as **27.005**
" in the standard form"
- 6 Order the following numbers from the least to the greatest
45.072, 45.702, 45.729, 45.572
..... **45.072, 45.572, 45.702, 45.729**
- 7 Mohamed bought 3.75 kg of flour, he bought another 2.25 kg of it.
How much flour did he buy?
Mohamed bought $= 3.75 + 2.25 = 6$ kg

Third: Choose the correct answer:

- 1 $23 \div 0.1 =$ **230** . (230 or 23 or 2.3 or 0.23)
- 2 In 161.527, which digit is in the Thousandths place? (1 or 2 or 6 or **7**)
- 3 What is the value of x in the area model of 43×27 ? (6 or 12 or **60** or 120)

	40	3
20	800	x
7	280	21
- 4 If $25 \times 125 = 3,125$, then $3,126 \div 25 =$ **125 R 1** . (125 or **125 R1** or 126 or 125 R6)
- 5 The composite number in the following is **15** . (7 or 17 or **15** or 5)
- 6 $2.153 \approx$ **2.2** (To the nearest Tenth) (2.1 or 2.15 or 2.14 or **2.2**)
- 7 $2\frac{1}{2}$ days = **60** hours (**60** or 50 or 48 or 24)

Fourth: Answer the following:

- 1 Find the GCF of 9 and 12

$$9 = \mathbf{3 \times 3}$$

$$12 = \mathbf{3 \times 2 \times 2}$$

$$\text{GCF} = \mathbf{3}$$

$$\text{LCM} = \mathbf{3 \times 3 \times 2 \times 2 = 36}$$

- 2 Find using any way $2,250 \div 25$ (Show your steps)

$$\mathbf{2,250 \div 25 = 90}$$

- 3 Find 2.33×2.4 (Show your steps)

$$\mathbf{2.33 \times 2.4 = 5.592}$$

- 4 Mohamed ran 2.569 km on the first day and 1.269 km on the second day. What is the difference between the two distances?

$$\mathbf{\text{The difference} = 2.569 - 1.269 = 1.3 \text{ km}}$$

Alexandria Governorate - Middle Educational Zone



First: Choose the correct answer:

- 1 6×100 **>** 6×0.1 (**<** or **>** or **=** or otherwise)
- 2 The only even prime number is **2**. (0 or 1 or **2** or 12)
- 3 The place value of the digit 7 in 8.97 is **Hundredths**
(Hundred or **Hundredths** or Tenths or Thousandths)
- 4 $1.8 \times 2 =$ **3.6**. (3.5 or 4 or 6.3 or **3.6**)
- 5 $85.5 \text{ g} =$ **0.0855** kg (85.5 or 8.55 or 0.855 or **0.0855**)
- 6 $4.165 =$ **4.2** (to the nearest Tenth) (4 or **4.2** or 4.17 or 4.1)
- 7 $100 \times 25 =$ **25 Hundreds** (250 or **25 Hundreds** or 25 Tenths or 25)

Second: Complete the following:

- 1 The LCM of 4 and 5 is **20**.
- 2 $6 + 0.08 + 0.001 =$ **6.081** (In standard form)
- 3 In the pattern: 20 , 25 , 30 , 35 , 40 , then the rule is **$n + 5$** .
- 4 The value of the underlined digit in 4.12 is **0.02**.
- 5 2.157 liters = **2,157** milliliters.
- 6 $1.2 \div 0.4 =$ **3**.
- 7 The prime factors of 21 are **3** and **7**.
- 8 $8.41 - 6.35 =$ **2.06**.

Third: Choose the correct answer:

- 1 The value of x in the equation $x + 0.5 = 2$ **1.5** .
(1.5 or 2.3 or 1.3 or 2.2)
- 2 Two and three Thousandths in standard form is **2.003** .
(20.3 or 2.3 or 20.03 or 2.003)
- 3 $6 \times 4.2 = (6 \times 4) + (6 \times \mathbf{0.2})$
(0.2 or 0.02 or 2 or 2.2)
- 4 $32.92 + 62.71 = \mathbf{95.63}$. (9,563 or 9.563 or 0.9563 or 95.63)
- 5 2, 3, 3 are prime factors of **18** . (1 or 3 or 12 or 18)
- 6 The dividend in the equation $36 \div 4 = 9$ is **36** . (3.6 or 36 or 9 or 4)
- 7 $3.642 \simeq \mathbf{3.64}$ (to the nearest Hundredth) (4 or 3.7 or 3.6 or 3.64)

Fourth: Answer the following:

- 1 Find the GCF of 15 and 10

$$15 = \mathbf{3 \times 5}$$

$$10 = \mathbf{5 \times 2}$$

$$\text{GCF} = \mathbf{5}$$

$$\text{LCM} = \mathbf{3 \times 5 \times 2 = 30}$$

- 2 3.4×1.8

$$\mathbf{3.4 \times 1.8 = 6.12}$$

- 3 Eyad caught a fish 44.5 cm long, and Zyad caught a fish 11.2 cm long.
Find the sum of the lengths of the two fish.

$$\mathbf{\text{The sum of the lengths} = 44.5 + 11.2 = 55.7 \text{ cm}}$$

- 4 Decompose the number 4.78

$$\mathbf{4.78 = 4 + 0.7 + 0.08}$$

Alexandria Governorate - Al Agamy Educational Zone



First: Choose the correct answer:

- 1 The number "Four and one hundred sixty-two thousandths" in the standard form is **4.162** . (0.4126 or **4.162** or 4,152,000 or 4,162)
- 2 $16.9 + 2.185 =$ **19.085** . (**19.085** or 18.192 or 18.085 or 17.084)
- 3 $12.4 \text{ L} =$ **12,400** mL (**12,400** or 1,240 or 0.124 or 0.0124)
- 4 The number whose all prime factors are 3, 3 and 5 is **45** . (18 or 30 or **45** or 90)
- 5 $12.0189 \approx$ **12.019** (to the nearest Thousandth) (12.089 or 12.018 or **12.019** or 10.000)
- 6 The value of digit 6 in 2.326 is ...**0.006**... (**0.006** or 0.600 or 0.6 or 6)
- 7 Which is the greatest number 12.8, 12.75, 12.452 or 12.78? (**12.8** or 12.75 or 12.452 or 12.78)

Second: Complete the following:

- 1 The prime factors of 35 are **5 and 7**.
- 2 $40 \times$...**1,000**... = 40,000
- 3 The common multiple of all numbers is**0** ..
- 4 $36.479 \approx 36.5$ (rounded to the nearest **tenths**)
- 5 The rule of the pattern 2, 6, 18, 54 is**n X 3** ..
- 6 $(40 \times 30) + (40 \times 8) + (7 \times 30) + (7 \times 8) =$ **47** X **38**
- 7 The equation that represents the opposite bar model is **$3.5 = w + 2.8$**
- 8 $4,500 \div 9 =$ **500**

3.5	
W	2.8

Third: Choose the correct answer:

- 1 $2.3 \times 0.2 = 0.46$. (0.34 or **0.46** or 0.046 or 0.043)
- 2 $225 \text{ cm} = 2.25$ meter (2250 or 22.5 or 0.225 or **2.25**)
- 3 Multiply 5 by the sum of 2.1 and 6 is written as **$5 \times (2.1 + 6)$**
 ($5 \times 2.1 + 6$ or $(5 \times 2.1) + 6$ or $5 + (2.1 \times 6)$ or **$5 \times (2.1 + 6)$**)
- 4 $0.300 = 3$ tenths . (3 tenths or $\frac{300}{100}$ or $\frac{30}{10}$ or $\frac{3}{100}$)
- 5 $157 \times 0.1 = 15.7$. (**15.7** or 157 or 1.57 or 0.157)
- 6 The value of the expression $22 + 33 - (3 + 8)$ is **44** . (5 or 13 or 25 or **44**)
- 7 Which of the following numbers is a common multiple of both 3 and 5?
 (50 or 40 or **90** or 25)

Fourth: Answer the following:

- 1 Solve the equation $K + 2.4 = 7.8$

$$k = 7.8 - 2.4 = 5.4$$

- 2 A factory produces 320 toys each month. What is the number of toys that must be produced at 12 months?

$$\text{The number of toys} = 320 \times 12 = 3,840 \text{ toys}$$

3. Find the GCF and LCM of 36 and 24

$$36 = 2 \times 2 \times 3 \times 3$$

$$24 = 2 \times 2 \times 3 \times 2$$

$$\text{GCF} = 2 \times 2 \times 3 = 12$$

$$\text{LCM} = 2 \times 2 \times 3 \times 3 \times 2 = 72$$

- 4 If the price of 14 books is 490 pounds, find the price of each book.

$$\text{The price of each book} = 490 \div 14 = 35 \text{ pounds}$$

Alexandaria Governorate - West Educational Zone



First: Choose the correct answer:

- 1 The place value of the digit 8 in 6.285 is **hundredths**
(Tenths or 0.08 or **Hundredths** or 0.8)
- 2 49×912 is closer to ... **45,000** ... (4.500 or **45,000** or 40,000 or 4.00)
- 3 $7.54 < \underline{7.6}$. (7.145 or 7.216 or **7.6** or 7.399)
- 4 8 and 9 thousandths = ... **8.009** . (**8.009** or 89,000 or 8.09 or 8.909)
- 5 $23.86 \div 10 = \underline{2.369}$. (23.86 or **2.369** or 238.6 or 2386)
- 6 $3.269 \simeq \underline{3.27}$ (to the nearest Hundredth)
(3.3 or 3.26 or **3.27** or 3.269)
- 7 $42.59 \times 100 = \underline{4,259}$. (425.9 or 4.259 or **4,259** or 42,590)

Second: Complete the following:

- 1 $30 + 6 + 0.4 + 0.007 = \underline{36.407}$ (In standard form)
- 2**1**..... is the common factor of all numbers.
- 3 In the opposite bar model $x = \underline{30}$

x	
24.8	5.2
- 4 The smallest prime number is**2**.....
- 5 9 Hundredths - 15 Thousandths = **75** Thousandths
- 6 The opposite area model
represent**30.4**..... x**8.2**.....

	8	0.2
30	240	6
0.4	3.2	0.8
- 7 $2.45 \div 1.5 = \underline{24.5} \div 15$
- 8 The number whose prime factors are 2 , 2 , 3 , 5 is **60** .

Third: Choose the correct answer:

1 Which of the following is an expression?

$(x + 0.8 - 1.6)$ or $3.25 + y = 5.55$ or $2.36 - 1.5 = m$ or Twice the num.)

2 If $34 \div 8 = 4 \text{ R}2$, then the dividend is **34** (2 or 8 or 4 or **34**)

3 The solution of the equation $m - 5.9 = 4.1$ is $m =$ **10**.
(9.10 or **10** or 1.8 or 6.13)

4 The LCM of 5 and 10 is **10**. (5 or **10** or 15 or 25)

5 $27 \times$ **96** $= [7 \times 90] + [7 \times 6] + [20 \times 90] + [20 \times 6]$
(69 or 79 or **96** or 97)

6 The first operation to calculate $50 - 8 + 1.2 \times 10 \div 0.1$ is **multiplication**
(addition or subtraction or **multiplication** or division)

7 The rule of the pattern: 3, 7, 11, 15 is ... **$n + 4$** ...
($n - 4$ or **$n + 4$** or $n \times 4$ or $n \div 4$)

Fourth: Answer the following:

1 Find the GCF and the LCM of 12 and 18.

$$12 = \dots \mathbf{2 \times 2 \times 3}$$

$$18 = \dots \mathbf{2 \times 3 \times 3}$$

$$\text{GCF} = \mathbf{2 \times 3 = 6}$$

$$\text{LCM} = \mathbf{2 \times 2 \times 3 \times 3 = 36}$$

2 Ahmed bought 9 pens of the same type. If the price of one pen is 13.85 pounds, how much will Ahmed pay?

$$\mathbf{\text{Ahmed paid} = 13.85 \times 9 = 124.65 \text{ pounds}}$$

Final Revision

- 3 Use the order of operations to find the value of

$$13.5 + 0.25 \div 0.1 - (12.8 \times 0.1)$$

$$13.5 + 0.25 \div 0.1 - (12.8 \times 0.1)$$

$$= 13.5 + 2.5 - 1.28 = 16 - 1.28 = 14.72$$

- 4 Use the opposite table to discover the rule, then find the missing numbers in the table.

The rule is: $n + 1.5$

Input	Output
6	7.5
10	11.5
14	15.5
8.5	10
12.25	13.75
16	17.5

El-Behera Governorate - Damanhour Educational Zone



First: Choose the correct answer:

1 $25.3 \times 0.1 = 2.53$. (253 or 2.53 or 25.3 or 2,530)

2 The GCF of 9 and 6 is 3 . (2 or 3 or 6 or 4)

3 The common factor of all numbers is 1 . (1 or 2 or 3 or 4)

4 The place value of 7 in 8.07 is hundredths
(Ones or Tenths or Hundredths or Thousandths)

5 The next number in (2, 5, 8, _____ , is 11 . (10 or 11 or 12 or 13)

6 13.69 14 (to the nearest whole number) (69 or 14 or 13 or 70)

7 $8.5 \times 1.4 = 85 \times 0.14$ (< or > or = or other wise remaining)

Second: Complete the following:

1 The rule of the pattern 0, 3, 6, 9, is $n + 3$.

2 In the opposite area model, the value of $x = 120$

	20	4
30	600	X
2	40	8

3 $4 + 2 \times 3 = 10$

4 $700 \text{ m} = 0.7 \text{ Km}$

5 $3.58 + K = 4.69$, then $K = 1.11$

6 If $42 \times 51 = 2,142$, then $4.2 \times 0.51 = 2.142$

7 3 hundredths $\times 3 = 9$ hundredths

8 $75.41 \times 0.01 = 0.7541$

Third: Choose the correct answer:

1 $15.3 \times 0.1 = 1.53$ (1.54 or 1.53 or 1.5 or 1.548)

2 The quotient in the equation $155 : 5 = 31$ is 31. (155 or 31 or 5 or 1)

3 The common factor of all numbers is 1. (1 or 2 or 3 or 4)

4 $0 \times 658 = 0$ (658 or 0 or 1 or 6580)

5 Subtract 7.4 from 8.6 written $8.6 - 7.4$

($7.4 - 8.6$ or $8.6 - 7.4$ or 8.6×7.4 or $8.6 \div 7.4$)

6 If $35 \times 121 = 4,235$ then $4,235 \div 121 = 35$ (121 or 35 or 4235 or 35R2)

7 The value of the digit 3 in 5.35 is 0.3 (3 or 0.3 or 0.03 or 30)

Fourth: Answer the following:

1 Find the result:

A $4,864 \div 32$

B 321×15

a) $4,864 \div 32 = 152$ **b)** $321 \times 15 = 4,815$

2 Use the order of operation to evaluate $5.5 \div 5 \times 10 - 10$

$5.5 \div 5 \times 10 - 10 = 1.1 \times 10 - 10 = 11 - 10 = 1$

Final Revision

- 3 Find the GCF of 20 and 35

$$20 = 2 \times 2 \times 5$$

$$35 = 5 \times 7$$

$$\text{GCF} = 5$$

$$\text{LCM} = 2 \times 2 \times 5 \times 7 = 140$$

- 4 Ola saved 17.25 pounds and her brother Hossam saved 8.5 pounds. Find the sum they saved.

$$\text{The sum} = 17.25 + 8.5 = 25.75 \text{ pounds}$$

Qalyubiyya Governorate - Banha Educational Zone



First: Choose the correct answer:

1 $0.008 + 0.07 + 20 = 20.078$ (20.807 or 20.78 or 20.708 or 20.078)

2 $0.2 \times 0.4 = 0.08$ (8 or 0.8 or 0.08 or 0.008)

3 The value of the digit 4 in 3.514 is 0.004.

(Ones or Thousandths or 4 or 0.004)

4 The rule of the pattern 3, 5, 7, ..., is $2 + n$.

($2 + n$ or $3 + n$ or $(n \times 2) + 1$ or $(2 \times n) - 1$)

5 $5.6 \text{ Km} = 5,600 \text{ m}$ (56 or 0.056 or 56,000 or 5,600)

6 $14.6 \div 0.1 = 146$ (10 or 100 or 0.01 or 0.1)

7 $3 + 0.7 \mid = \mid 3.70$ ($<$ or $>$ or $=$ or \leq)

Second: Complete the following:

1 $3.215 + 3.13 = 6.345$ 2 $5.36 \times 0.01 = 0.0536$

3 The number whose prime factors are 2, 3 and 5 is 30.

4 The GCF of 14 and 35 is 7.

5 Seventeen and seven tenths = **10** + **7** + **0.7**

6 785 cm = ... **7.85** ... m

7 35.469 \approx ... **35.47** ... to the nearest Hundredths

8 The quotient of $84.24 \div 2 =$... **42.12** ..

Third: Choose the correct answer:

1 $6.500 =$ **1** $\times 6.5$ (**1** or 10 or 100 or 1,000)

2 Two hundred and five thousandths = **200.005**
(0.502 or 5.200 or **200.005** or 0.25)

3 $0.2 - 0.05 =$ **0.15** (0.3 or 0.03 or **0.15** or 0.25)

4 $(17 \times 4) + (17 \times 40) + (17 \times 400) =$ **444 \times 17**
(**444 \times 17** or 666 \times 51 or 660 \times 17 or 45)

5 The LCM for 2 and 3 is **6** . (2 or 3 or 5 or **6**)

6 The value of the variable K in the equation: $K - 2.5 = 4$ is **6.5** .
(3.5 or 2.5 or 4 or **6.5**)

7 The place value of the underlined digit 8.734 is **Tenths** .

(**Tenths** or Zero or Hundredths or Ones)

Fourth: Answer the following:

- 1 Lara bought 5 pens, if the price of each pen is 3.81 pounds. How much is the total cost?

The total cost = $5 \times 3.81 = 19.05$ pounds

- 2 Use the ordering of operations to solve: $(45.2 - 14) \div 0.1 + 32.2$

$(45.2 - 14) \div 0.1 + 32.2$

$= 31.2 \div 0.1 + 32.2 = 312 + 32.2 = 344.2$

- 3 A rope that is 8.7 meters long is being cut into 3 equal pieces. How long is each piece?

The length of each piece = $8.7 \div 3 = 2.9$ meters

- 4 Find the result: 75×32 (Show your steps)

**$75 \times 32 = (70 \times 30) + (70 \times 2) + (5 \times 30) + (5 \times 2) = 2,100 + 140 + 150 + 10$
 $= 2,400$**

Damietta Governorate - Ras El Bar Educational Zone



First: Choose the correct answer:

1 $54.318 \times 100 = 5,431.8$ (54.318 or 543.11 or **5,431.8** or 54,318)

2 In the number 162.513, which digit is in the Hundredths place?

(**1** or 6 or 5 or 3)

3 $5.64 \times 5 < 56.4 \times 8$

(**<** or **>** or **=** or **≥**)

4 $250 + 0.2 + 0.05 = 250.25$

(25.25 or **250.25** or 250.205 or 25.205)

5 The prime factors of 15 are **3 and 5**.

(1 and 3 or **3 and 5** or 5 and 15 or 1 and 15)

6 5 Liters = **5,000** mL

(500 or 50 or **5,000** or 0.5)

7 The LCM of 5 and 10 is **10**.

(5 or 50 or **10** or 500)

Second: Complete the following:

1 23, 27, 31, ..., **35** ...

(in the same pattern)

2 The operation in the opposite area model

is **3.2** \times **2.2**

	3	0.2
2	6	0.4
0.2	0.6	0.04

3 The number whose all prime factors are 2, 2 and 5 is **20**.

4 **1,000** $\times 15 = 15,000$

5 **2** is the only even prime number.

6 $0 \div 32,562 = 0$

7 $2 + (2 \times 5) = 12$

8 Three and twenty-five thousandths = **3.025**

Third: Choose the correct answer:

- 1 $2.6 \div 2 =$ **1.3** (1.2 or **1.3** or 1.4 or 0.13)
- 2 $75 \times 43 = [70 \times 40] + [70 \times 3] + [5 \times 40] + [5 \times$ **3** $]$ (70 or 40 or 5 or **3**)
- 3 If $21 \div 5 = 4 \text{ R } 1$, then the divisor is **5** (21 or 4 or **5** or 1)
- 4 $0.4 \times 0.6 =$ **0.24** (24 or 2.4 or **0.24** or 0.024)
- 5 If $23.2 - y = 12$, then $y =$ **11.2** (23.2 or 1.1 or **11.2** or 1.21)
- 6 Rounding the number 2.153 to the nearest Tenth is **2.2** (2.1 or 2.15 or 2.14 or **2.2**)
- 7 The number 11 has **2** factors. (1 or **2** or 3 or 4)

Fourth: Answer the following:

- 1 If 120 pens are packed, each 12 to a bag, then how many bags will be there?

The number of bags = $120 \div 12 = 10$ pens

- 2 Find the greatest common factor (GCF) for 12 and 8.

$$12 = \dots \mathbf{2 \times 2 \times 3} \dots$$

$$8 = \dots \mathbf{2 \times 2} \dots \mathbf{\times 2}$$

$$\text{GCF} = \dots \mathbf{2 \times 2} \dots = \mathbf{4}$$

$$\text{LCM} = \dots \mathbf{2 \times 2 \times 3 \times 2} = \mathbf{24}$$

- 3 Use the mathematical order of operations to evaluate the following expression. $3.3 \div 3 \times 10 - 10$

$$\mathbf{3.3 \div 3 \times 10 - 10 = 1.1 \times 10 - 10 = 11 - 10 = 1}$$

- 4 Mona had 78.4 LE, she spent 52.74 LE. Find the remainder.

$$\mathbf{\text{The remainder} = 78.4 - 52.74 = 25.66 \text{ L.E}}$$

Assiut Governorate - Assiut Educational Zone

12

First: Choose the correct answer:1 The value of the digit 5 in 6.325 is **0.005** . (5 or 0.5 or 0.05 or **0.005**)2 10 is a multiple of **5** (7 or 6 or **5** or 4)3 $30 + 4 + 0.5$ **=** 34.500 ($>$ or $<$ or **=**)

4 Which of the following is an equation?

(5 - y or $3.2 + 1.6$ or **$x + 2.5 = 7$** or $4 + 3m$)5 $2,525 \div 25 =$ **101** (11 or **101** or 111 or 25)6 $25 \times 43 = (20 \times 40) + (20 \times 3) + (5 \times 40) + (5 \times$ **3** $)$ (40 or 30 or 20 or **3**)7 700 g = **0.7** kg (7000 or 70 or 7 or **0.7**)**Second: Complete the following:**1 Using the bar model

X	
2.3	5.4

 the value of X is **$2.3 + 5.4 = 7.7$** 2 The smallest prime number is ... **2** ...3 $10,000 \times$ **8** $= 80,000$ 4 The common factor of all numbers is **1**5 5 hundredths - 24 thousandths = **26** thousandths6 $10 + 3.5 \div 0.1 =$ **45** 7 $2400 \div 80 =$ **30**8 $7.457 \approx$ **7.46** to the nearest Hundredth**Third: Choose the correct answer:**1 The divisor in $675 \div 24 = 28 \text{ R } 3$ is **24** . (675 or **24** or 28 or 3)2 $0.1 \times 0.1 =$ **0.01** (0.03 or 0.02 or **0.01** or 0.1)3 If $6,726 \div 19 = 354$, then $354 \times 19 =$ **6,726** .(6,267 or **6,726** or 6,727 or 6,628)

4 Subtract 3.1 from 4.62, then multiply the result by 2, then the expression is $(4.62 - 3.1) \times 2$ (4.62 - 3.1 \times 2 or $(4.62 - 3.1) \times 2$ or 3.1 \times 2 or 4.62 \times 2)

5 $4.45 - 4.32 < 1.01 + 0.3$ ($<$ or $>$ or $=$ or \leq)

6 In the opposite area model, $X + y = 6.15$
(6 or 0.15 or 6.15 or 15.6)

	2	0.3
3	X	0.9
0.5	1	y

7 The rule of the pattern 3, 5, 7, 9, is $n + 2$

($n - 2$ or $n + 2$ or $n \times 2$ or $n \div 2$)

Fourth: Answer the following:

- 1 Rashad and his father went on a fishing trip to Lake Nasser. They each caught a huge fundu catfish. The first one weighed 53.25 kg. The smaller one weighed 46.7 kg. How much did the fish weigh in all?

The weight of all fish = $53.25 + 46.7 = 99.95$ kg

- 2 Find the GCF and LCM for 10 and 12

10 = 2×5

12 = $2 \times 2 \times 3$

GCF = 2

LCM = $2 \times 2 \times 3 \times 5 = 60$

- 3 The city council planted trees on the side of a 1,050-meter road. If 75 trees are planted at equal distances, what is the distance between each tree?

The distance = $1,050 \div 75 = 14$ meters

- 4 Determine the values of the missing digits and then find the final product.

$$\begin{array}{r}
 \textcircled{4} \\
 \textcircled{4} \\
 6 \quad 7 \\
 \times \quad 7 \quad 6 \\
 \hline
 4 \quad 0 \quad 2 \\
 + \quad \boxed{4} \quad 6 \quad 9 \quad \boxed{0} \\
 \hline
 \boxed{5} \quad \boxed{0} \quad \boxed{9} \quad \boxed{2}
 \end{array}$$



First: Choose the correct answer:

- 1 The value of the digit 4 in 3.514 is**0.004**...
(40,000 or 400 or 0.4 or **0.004**)
- 2 Which of the following is an expression?
($2.5 + x = 8$ or $2.5 + 1.4 = 1.6 + 1.3$ or Ramy saved 18 LE per day or **$x + 2.7 - 3.8$**)
- 3 3, 5, 7, 9, 11, **13** in the same pattern. (21 or 15 or **13** or 12)
- 4 **1** is a common factor for all numbers. (0 or **1** or 2 or 3)
- 5 $9.782 \approx$ **9.8** (to the nearest Tenth) (10 or **9.8** or 9.88 or 9.7)
- 6 $30 + 0.04 + 0.005 =$ **30.045** (**30.045** or 30.45 or 30.405 or 30.504)
- 7 $7.14 \times 0.1 =$ **0.714** (**0.714** or 71.4 or 7.140 or 714)

Second: Complete the following:

- 1 2 Hundredths - 2 Thousandths = **18** Thousandths
- 2 The number which has 2, 2, 3, 5 as prime factors is **60**.
- 3 2.5 liters = **2,500** milliliters
- 4 The greatest common factor GCF of 5 and 10 is **5**.
- 5 The product of : 0.3×0.4 is equal to **0.12** ...
- 6 The sum of $2.05 + 4.127 =$ **6.177**
- 7 Quotient \times divisor + remainder = **Dividend**
- 8 Sixty-four and sixty-four thousandths in standard form is **64.064**.

Third: Choose the correct answer:

- 1 $[3 \times 61] + [5 \times 61] =$ **8** $\times 61$ (5 or 7 or **8** or 15)
- 2 0.3 **>** 3 Thousandths (**<** or **>** or =)
- 3 **35** is one of the multiples of number 5. (38 or 53 or **35** or 6)
- 4 If the input is 45, and the rule is " $n \div 5$ ", then the output is **9**.
(6 or 40 or **9** or 50)
- 5 $253 \div 1,000 =$ **0.253** (2.53 or 0.235 or **0.253** or 2,530)
- 6 The value of x in the equation $x - 5.3 = 6$ is **11.3**.
(**11.3** or 0.7 or 30 or 8.62)
- 7 All the following are prime numbers, except **6** (5 or 7 or 3 or **6**)

Fourth: Answer the following:

- 1 Use the mathematical order of operations to evaluate: $12 + (9 - 2) \times 5$
 $12 + (9 - 2) \times 5 = 12 + 7 \times 5 = 12 + 35 = 47$
- 2 Find the least common multiple LCM of 4 and 6
 $4 = 2 \times 2$
 $6 = 2 \times 3$
 $LCM = 2 \times 2 \times 3 = 12$
- 3 Farida saved 17.25 pounds and her brother Murad saved 8.5 pounds.
Find the sum they saved
 $They\ saved = 17.25 + 8.5 = 25.75\ pounds$
- 4 Find the result [Show your steps]: $1,477 \div 12 =$ **123** remainder **1**
 $1,447 \div 12 = 123\ R\ 1$

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First: Choose the correct answer:

1 Using the opposite bar model: $x =$ **0.36**

(2.8 or 1.8 or 1.64 or **0.36**)

3.16	
x	2.8

2 The value of the digit 2 in 34.527 is **0.02**.

(2 or 20 or 0.2 or **0.02**)

3 $4150 \div 29 = 143$ R **3**

(1 or 2 or **3** or 4)

4 $24 \times 15 =$ **36** Tens

(360 or **36** or 3.6 or 3600)

5 The rule of the opposite pattern is **$n \times 8$** .

($n + 8$ or **$n \times 8$** or $n \times 3$ or $n + 7$)

Input	1	2	3	4
Output	8	16	24	32

6 If $58 \times 47 = 2726$, then $5.8 \times 0.47 =$ **2.726**...

(**2.726** or 272.6 or 0.2726 or 27.26)

7 $1,212 \div 12 =$ **101**

(11 or 12 or **101** or 1001)

Second: Complete the following:

1 If $3.23 + P = 10.24$ then $P =$ **7.01**.....

2 $2,207 \div 7 =$ **315**..... R **2**

3 $12 + 24 \div 4 - 8 =$ **10**

4 Rounding the number 56.284 to the nearest Tenth is **56.3**.

5 $24 \times 37 = (20 \times 30) + ($ **20** \times **7** $) + ($ **4** \times **30** $) + (4 \times 7)$

6 $2,400 \div 80 =$ **30**

7 The factor of all numbers is **1**.

8 **6.512** $\times 0.1 = 0.6512$

Third: Choose the correct answer:

1 Which of the following is an equation?

(25.6 - 9 or **9 - x = 3.5** or 7.5 + 3.65 or 3.6 + 1.6)

2 $0.7 \times 0.6 =$ **0.42**

(0.76 or 4.2 or **0.42** or 7.6)

3 5 Hundredths - 24 Thousandths = **0.026**

(26 or **0.026** or 0.029 or 29)

4 $25 \times 0.001 =$ **0.025**

(25 or 2.5 or 0.25 or **0.025**)

5 In the opposite area model,

the quotient **116**....

(31 or 26 or **116** or 3622)

	100	10	6
31	3622	522	212
	- 3100	- 310	- 186
	522	212	26

6 $1 + 0.5 + 0.05 =$ **1.55**

(15.5 or **1.55** or 55.1 or 1.51)

7 700 grams = **0.7** kilograms

(**0.7** or 7 or 70 or 7000)

Fourth: Answer the following:

1 Find the LCM of 10 and 12

10 = **2 X 5**

12 = **2 X 2 X 3**

LCM **2 X 5 X 2 X 3 = 60**

2 Using the following area model, find 45×137

$45 \times 137 = 4,000 + 1,200 +$

$280 + 500 + 150 + 35 = 6,165$

	100	30	7
40	4,000	1,200	280
5	500	150	35

3 Rashad and his father went on a fishing trip. They each caught a huge fish. The first one weighed 53.25 kilograms, and the smaller one weighed 46.8 kilograms. How much did the fish weigh all together?

The weight of all fish = $53.25 + 46.8 = 100.05$ kg

Final Revision

4 Using the opposite figure, find:

$$3,872 \div 11 = \underline{\hspace{2cm}} \mathbf{352} \underline{\hspace{2cm}}$$

$$\begin{array}{r} \mathbf{3} \mathbf{5} \mathbf{2} \\ 11 \overline{) 3872} \\ \underline{33} \\ \mathbf{5} \mathbf{7} \\ \underline{55} \\ \mathbf{2} \mathbf{2} \\ \underline{22} \\ \mathbf{0} \mathbf{0} \end{array}$$

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15

First: Choose the correct answer:

1 Three and four-tenths = $\mathbf{3.4}$ (34 or 340 or $\mathbf{3.4}$ or 3.04)

2 $\mathbf{18}$ is a multiple of 9. (3 or 15 or $\mathbf{18}$ or 21)

3 $79.431 \approx$ $\mathbf{79.43}$ to the nearest Hundredth
(79.4 or $\mathbf{79.43}$ or 79.44 or 79.441)

4 The value of Y in the equation: $6.8 = 1.2 + Y$ is $\mathbf{5.6}$. (8 or $\mathbf{5.6}$ or 5 or 6.5)

5 $8.3 \times 100 =$ $\mathbf{830}$ (0.83 or 8.03 or $\mathbf{830}$ or 8300)

6 $6 + 18 \div 3 - 1 =$ $\mathbf{11}$ (7 or 8 or $\mathbf{11}$ or 15)

7 The quotient of : $4,200 \div 7 =$ $\mathbf{600}$ (6 or 60 or $\mathbf{600}$ or 0.06)

Second: Complete the following:

1 $6.3 \div 0.7 =$ $\mathbf{9}$..

2 $489.51 = 489 +$ $\mathbf{0.51}$

3 The product of: $18.2 \times 0.1 =$ $\mathbf{1.82}$

4 The LCM for 5 and 4 is $\mathbf{20}$..

5 The quotient of $621.5 \div 10 =$ $\mathbf{62.15}$

6 If $K - 15.76 = 3.24$, then the value of $K =$ **19** .

7 The value of the digit 9 in 2.639 is **0.009** .

8 The greatest common factor (GCF) for 8 and 16 is **8** .

Third: Choose the correct answer:

1 **0** is a common multiple for all numbers. (**0** or 1 or 2 or 3)

2 The rule of the pattern : 3 , 5 , 7 , 9 , is . **$n + 2$** .
(**$n + 2$** or $n + 3$ or $2n - 3$ or $2n - 1$)

3 The place value of digit 5 in 13.507 is **tenths** .
(500 or 0.05 or Hundredths or **Tenths**)

4 $(25 \times 2) + (25 \times 7) = 25 \times$ **9** (**9** or 27 or 72 or 14)

5 6.7 liter = **6,700** ml (0.067 or 67 or 670 or **6,700**)

6 6.25×0.1 **<** $6.25 \div 0.1$ (**>** or **<** or **=** or otherwise)

7 $50 + 0.4 + 0.007 =$ **50.407** (50.047 or 50.704 or **50.407** or 50.74)

Fourth: Answer the following:

1 Using the opposite model: Find the value of variable D

6.6	
5.3	D

$$D = 6.6 - 5.3 = 1.3$$

2 Rahma saved 17.25 pounds and her sister Salwa saved 8.5 pounds.
Find the sum they have saved.

$$\text{The sum of money} = 17.25 + 8.5 = 25.75 \text{ pounds}$$

3 Calculate the product of : 2.5×2.3

$$2.5 \times 2.3 = 5.75$$

4 A teacher wants to distribute 240 prizes equally among 6 classes: How many prizes does each class get?

$$\text{Each class gets} = 240 \div 6 = 40 \text{ prizes}$$

First: Choose the correct answer:

- 1 The place value of the digit 2 in 3.127 is **hundredths**
(Ones or Hundred or Tenth or **Hundredths**)
- 2 The divisor in the equation $1.8 \div 6 = 0.3$ is **6**
(0.3 or 1.8 or **6** or 0.6)
- 3 $3.33 \div 0.1 =$ **33.3**
(**33.3** or 3.33 or 0.333 or 0.33)
- 4 0.9 is closer to **1**
(0.5 or 0.6 or **1** or 0.25)
- 5 10 is a multiple of **5**
(3 or 4 or **5** or 6)
- 6 $1,500 \div 50 =$ **30**
(3 or **30** or 300 or 3,000)
- 7 The common multiple of all numbers is **0**
(1 or 2 or **0** or 3)

Second: Complete the following:

- 1 The smallest odd prime number is**3**.....
- 2 $0.08 \text{ kg} =$ **80**..... gm
- 3 31 Hundredths + 2 Tenths = .. **0.51** ..
- 4 The quotient of $1,919 \div 19 =$ **101**.....
- 5 Thirty-seven and five tenths are written as **37.5** ..
- 6 28 days =**4**..... week(s)
- 7 The LCM of 6 and 9 is **18** ..
- 8 $91.364 \approx$ **91.36** (to the nearest Hundredth)

Third: Choose the correct answer:

- 1 $30 + 0.5 + 0.01 =$ **30.51** . (35.1 or **30.51** or 0.35 or 0.35)
- 2 $25 \times 4 \div (6 - 5) =$ **100** . (**100** or 101 or 0.01 or 165)
- 3 If $8.23 + P = 10.24$, then $P =$ **2.01** . (18.47 or 2.47 or **2.01** or 2.41)
- 4 The quotient of $2.4 \div 0.4 =$ **6** . (**6** or 11 or 0.6 or 1.6)
- 5 Estimate the product of 971×23 is **20,000** .
(**20,000** or 8,000 or 2,000 or 20)
- 6 All the following are prime numbers, except **6** . (5 or 7 or 3 or **6**)
- 7 $98.013 \dots \dots \dots < \dots \dots \dots 98.101$ (= or **<** or > or \leq)

Fourth: Answer the following:

- 1 Arrange from the least to the greatest (0.58 , 8.05 , 8.5 , 8.005)

The order : 0.58 , 8.005 , 8.05 , 8.5

- 2 Find the product of 32×12

$$32 \times 12 = 384$$

- 3 Find the GCF of 10 and 15

$$10 = \dots \dots \dots \mathbf{2 \times 5}$$

$$15 = \dots \dots \dots \mathbf{5 \times 3}$$

$$\text{GCF} = \dots \dots \dots \mathbf{5}$$

$$\text{LCM} = \mathbf{2 \times 5 \times 3 = 30}$$

- 4 Mona bought 3.75 kg of flour, and she bought another 2.25 kg of it. How much flour did she have?

$$\text{The flour that Mona had} = 3.75 + 2.25 = 6 \text{ kg}$$



First: Choose the correct answer:

1 The standard form of $0.004 + 0.8 + 20 + 300$ is **320.804** .

(302.804 or **320.804** or 320.840 or 32.408)

2 $166.8 + 12.52 =$ **179.32** . (179.20 or 178.60 or **179.32** or 178.32)

3 $800 \text{ mL} =$ **0.8** L (80,000 or 8,000 or **0.8** or 0.08)

4 The number whose all factors are 1, 2, 4 and 8 is **8** .

(64 or 24 or **8** or 16)

5 $39.018 \simeq$ **39.02** . (to the nearest Hundredth)

(39.10 or 39 or **39.02** or 39.1)

6 The value of digit 2 in 75.462 is **0.002** . (2 or 0.2 or $\frac{2}{100}$ or **0.002**)

7 Which is the greatest number 2.5, 2.27, 2.7 or 2.591?

(2.5 or 2.27 or **2.7** or 2.591)

Second: Complete the following:

1 The prime factors of 15 are **3 and 5** .

2 The equation that represents

the opposite bar model is **$p + 7.5 = 10.1$**

10.1	
7.5	P

3 $80 \times$ **100** = 8,000

4 Zero is a common **multiple**... of all numbers

5 $15.789 \simeq 15.8$ (is rounded to the nearest **tenth**)

6 The missing number of the pattern 80, 40, 20, ..., 5 is **10** .

7 $3,600 \div 4 =$ **900**

8 $(30 \times 8) + (30 \times 20) + (9 \times 8) + (9 \times 20) =$ **39** \times **28** .

Third: Choose the correct answer:

- 1 $2.4 \times 0.2 =$ **0.48** . (0.048 or **0.48** or 0.0048 or 48)
- 2 $6,500 \text{ cm} =$ **65** meter (**65** or 650 or 6.5 or 0.65)
- 3 Adding 13.5 and 2.5 then divide the sum by 4 is written as(**$13.5 + 2.5$**) $\div 4$
 $(13.5 + 2.5 \div 4$ or **$[13.5 + 2.5] \div 4$** or $13.5 + [2.5 \div 4]$ or $13.5 - [2.5 \div 4])$
- 4 $0.02 =$ **20 thousandths** ($\frac{2}{10}$ or 2 thousandths or **20 thousandths** or $\frac{20}{100}$)
- 5 $0.24 \div 0.01 =$ **24** . (0.24 or **24** or 2.4 or 0.0024)
- 6 The value of the expression $30 - 25 \div (4 + 1)$ is **25** . (1 or **25** or 5 or 10)
- 7 Which of the following numbers is a common multiple of both 2 and 3?
 (27 or 40 or **24** or 39)

Fourth: Answer the following:

- 1 Solve the equation $5.5 + k = 7.5$

$$k = 7.5 - 5.5 = 2$$

- 2 Ramy saved 225 pounds, and Alaa saved 15 times as much as Ramy.
How much money did Alaa save?

$$\text{Alaa saved} = 15 \times 225 = 3,375$$

- 3 Find the GCF of 28 and 42

$$28 = 2 \times 2 \times 7$$

$$42 = 2 \times 7 \times 3$$

$$\text{GCF} = 2 \times 7 = 14$$

$$\text{LCM} = 2 \times 2 \times 7 \times 3 = 84$$

- 4 A fast train covered a distance of 288 km in 12 minutes. Calculate the distance covered in one minute.

$$\text{The distance} = 288 \div 12 = 24 \text{ km}$$

Guide Answers

Theme 1

Unit 1

Concept 1

Lesson 1

- 1 1 → c 2 → a
3 → d 4 → b
- 2 1 0.5 2 0.03 3 0.16
4 0.029 5 5.03 6 56.17
7 115.76 8 3,300.3
9 3,026,075.172
10 15,700,005.17
- 3 1 Eight tenths
2 Twenty-three hundredths
3 Three hundred sixteen thousandths
4 Fifteen and three tenth
5 Five thousand, three hundred twenty-eight and ninety-six hundredths.
6 Thirteen and six hundred twenty-nine thousandths
7 Three million, one hundred twenty thousand and three hundredths
- 4 1 359,040.006 79
2 6,000,070,096.005
3 Nine milliard, two hundred million, sixty-five and twenty-seven thousandths
4 Two hundred five thousand, nine and four hundredths
5 Tenths, 0.6 6 0.0 7 0.09
8 Tenths 9 3, 2, 5 10 0.709
- 6 1 7,000,050 000 07
2 Fifty-six million, five hundred and thirty-five thousandths
3 Hundred Thousands 4 0
5 Tenths 6 0.003 7 4.45
8 $2 \frac{53}{1,000}$ 9 3 10 0.060
11 0.609

Assessment 1 on Lesson

First

- 1 9,000,090,000.009
2 Six thousand, two hundred and nine hundredths
3 Ten Thousands
4 30.3 5 0

Second

- 1 a 400,030,000.03
2 b Three million, three and three thousandths
3 c 40.056 4 c 8

Third

- 1 → c 2 → a 3 → b
4 → e 5 → d

Lessons

- 1 1 45.2 2 4,562.58 3 5.628
4 25.39 5 983.2
- 2 1 92.5 2 0.857
3 increased
4 0.025 5 248
6 decreased 7 89.3 8 0.638
9 27 10 4,583.6 11 2.5
12 3,500.876 13 25 025 14 235 48
15 63.025 16 0.043 17 0.36
18 $90 + 5 + 0.9 + 0.005$
19 8, 5, 3, 6 20 50.05
- 3 1 2 526 2 0.26 3 25 8
4 450 5 0.805
6 increases 7 right 8 23 023
9 $824 + 0.12$ 10 increases from 0.7 to 7
- 4 1 → b 2 → c
3 → d 4 → a
- 5 1 5, increased, 0.5, 5
2 7, increased, 0.07, 0.7
3 8, increased, 0.008, 0.08
4 0.578, increased, 0.578, 5.78,
 $0.578 \times 10 = 5.78$

Assessment 2 on Lessons

First

- 1 452.6 2 752.8 3 450.204
4 $20 + 0.05$ 5 8.5

Second

- 1 3.927 2 27 3 0.012
4 523.876 5 459

Third

- 1 $\rightarrow c$ 2 $\rightarrow a$ 3 $\rightarrow b$
4 $\rightarrow e$ 5 $\rightarrow d$

Lessons 415

- 1 1 > 2 < 3 =
4 > 5 < 6 <
7 > 8 > 9 <
10 = 11 < 12 >
13 < 14 = 15 >

- 2 1 270.3 2 560.38
3 180.60 4 900.900

- 3 1 100.50 2 90.025
3 100.002 4 8.237

- 4 1 a 5 b 69 c 1 d 100
2 a 4.6 b 110 c 0 d 56.9
3 a 1.26 b 63.83 c 1 d 2.00
4 a 45.369 b 0.326 c 1

- 5 1 a 5 b 9 c 0 d 1
e 13 f 70 g 101 h 1000
i 53

- 2 a 23.5 b 4.3 c 1.0 d 18.3
e 1.3 f 3.7 g 200.0 h 60.0
i 0

- 3 a 7.26 b 69.36 c 0.29 d 0.98
e 0.13 f 75.08 g 4.01 h 10.00
i 20.00

- 4 a 25.370 b 2,258.365 c 100.003
d 3.022 e 0.026 f 10

- 6 1 237 2 0.3 3 45.27
4 5.242 5 Tenth

- 6 Hundredth 7 whole number
8 $562.8 \approx 563$ 9 $5.6234 \approx 5.62$ 10 5.72
7 1 56.8 2 98.205 3 >
4 > 5 56.02 6 2.456
7 69.45 8 0.01 9 10
10 56.03
8 1 $56.025 < 56.052 < 56.25 < 56.502 < 56.52$
2 $60.05 > 50.06 > 6.005 > 5.060 > 5.006$

Assessment 3 on Lessons

First

- 1 a < 2 d 75.34 3 h 78
4 c Hundredth 5 b 20.024

Second

- 1 458.03 2 458 3 458
4 460 5 500

Third

- 1 < 2 > 3 = 4 < 5 <

Fourth

- 1 65 2 81 3 2.88

Assessment on Concept

First

- 1 5,005,500,000.005 2 507.89
3 0.09 4 5,864.7 5 458.0

Second

- 1 d Eight hundred thousand and eight hundredths
2 c 752
3 a 4,040.44 4 c 75.599

Third

- 1 < 2 < 3 >
4 = 5 <

Fourth

- 1 $\rightarrow b$ 2 $\rightarrow a$ 3 $\rightarrow c$
4 $\rightarrow e$ 5 $\rightarrow c$

Fifth

147.72 \approx 148 Kilometers

Concept

Lessons 6-7

- 1 **1** **a** $56.4 + 25 = 81.4$ **b** $6.4 + 15.3 = 21.7$
c $74.82 + 26.17 = 101.0$ **d** $8.3 + 1 = 9.3$
e $63.3 + 7.8 = 71.1$ **f** $96.4 + 69.5 = 165.9$
- 2 **a** $1 + 0.5 = 1.5$ **b** $26 + 3.5 = 29.5$
c $7 + 3 = 10$ **d** $1 + 2 = 3$
e $4.5 + 9 = 13.5$ **f** $6 + 4.5 = 10.5$
- 3 **1** 0.68 **2** 0.64 **3** 0.60
4 1.43 **5** 1.63
- 4 **1** 479.278 **2** 70,479.25
3 1,889.556 **4** 96,634.385
5 69,282.278
- 5 **1** 64.038 **2** 1,219.528
3 212.000 **4** 12.939
5 56,302.707 **6** 8,056.559
7 284.92 **8** 56,963.45
- 6 **1** $0.43 + 0.32 = 0.75$
2 $0.70 + 0.24 = 0.94$
3 $0.28 + 0.48 = 0.76$
4 $0.46 + 0.54 = 1$
5 $0.78 + 0.66 = 1.44$
6 $1.24 + 0.54 = 1.78$
- 7 **1** 15 **2** 60
3 721 **4** 118
5 430
- 8 **1** 1 **2** 0 **3** 1.5
4 114 **5** 12 **6** 52
7 6 **8** 12.43 **9** 0.55
10 1.3
- 9 **1** Second model **2** First model
3 $0.58 + 0.25$ **4** $0.9 + 0.48$ **5** 0.5
6 2 **7** 6.11 **8** 403
9 0.1 **10** 0.744
- 10 **1** $34.99 + 4.01 = 39.00 < 40$
 No, Malak didn't achieve her goal.
2 Total = $953.5 + 240.6 = 1,194.1$ kg
3 $4 + 1 = 5$ Yes, the fabric she has is enough.

Assessment 4 on Lessons 6&7

First

- 1 **a** $0.15 + 0.28$ **2** **b** **3** **d** 37.95
4 **b** 0.25 **5** **b** 70.5

Second

- 1 $5 + 5 = 10$ **2** 9.4 **3** 67
4 455.582 **5** 0.38

Third

- 1 \rightarrow **c** **2** \rightarrow **a** **3** \rightarrow **b**
4 \rightarrow **e** **5** \rightarrow **d**

Lessons 8-11

- 1 **1** 0.18 **2** 0.41 **3** 0.28
4 0.68 **5** 0.45
- 2 **1** 405.22 **2** 643.992 **3** 35.389
4 46.143 **5** 360.44
6 46,766.45
- 3 **1** 60.81 **2** 430.577 **3** 644.463
4 4.215 **5** 844.25 **6** 71.045
7 $39.56 - 24.36 = 15.2$
8 20,976.55
- 4 **1** $0.90 - 0.43 = 0.47$ **2** $0.54 - 0.30 = 0.24$
3 $0.68 - 0.46 = 0.22$ **4** $0.71 - 0.22 = 0.49$
5 $1.53 - 0.97 = 0.56$ **6** $1.04 - 0.9 = 0.95$
- 5 **1** **a** $75 - 27.2 = 47.8$ **b** $9.2 - 5.2 = 4$
c $25,152.2 - 105.5 = 25,046.7$
d $45.3 - 7.4 = 37.9$
e $56.3 - 9.8 = 46.5$
f $765.3 - 7.6 = 757.7$
2 **a** $1 - 0.5 = 0.5$ **b** $25 - 3.5 = 21.5$
c $9 - 2 = 7$ **d** $2 - 0.5 = 1.5$
e $7 - 0.5 = 6.5$ **f** $15 - 8 = 7$
- 6 **1** 64 **2** 35
3 446 **4** 103
5 450 **6** 476
- 7 **1** 41 **2** 91.3 **3** 1.1
4 2.5 **5** 70 **6** 66
7 5 **8** 906.81 **9** 0.55
10 48.23

- 1 First model 2 First model
 3 $0.83 - 0.4$ 4 $1.72 - 1.17$ 5 72.84
 6 20.2 7 71 8 285
 9 3.98 10 0.786
- 1 $7,520.25 + 5,640.5 = 13,160.75$ pounds
 $15,000 - 13,160.75 = 1,839.25$ pounds
 2 $675.5 - 239.47 = 436.03$ km
 3 $0.5 + 0.7 = 1.2$ L
 $1.5 - 1.2 = 0.3$ L

Assessment 5 on Lessons

First

- 1 a $0.42 - 0.27$ 2 b
 3 a 4.55 4 c 0.53 5 d 7.55

Second

- 1 2 2 11.2 3 85
 4 30.621 5 1

Third

- 1 \rightarrow b 2 \rightarrow a 3 \rightarrow d
 4 \rightarrow e 5 \rightarrow c

Fourth

Sum = $29.28 + 29.255 + 35.17 = 93.705$ cm
 Difference = $35.17 - 29.255 = 5.915$ cm

Assessment on Concept

First

- 1 6.2 2 94 3 45.25
 4 16 776 5 495

Second

- 1 a $0.5 - 0.27$ 2 d $0.77 + 0.30$ 3 a 3
 4 d 2 5 b 267

Third

- a \rightarrow 2 b \rightarrow 1
 c \rightarrow 4 d \rightarrow 3

Fourth

$12.25 + 15.5 = 27.75$ pounds
 $56.5 - 27.75 = 28.75$ pounds

Unit 2

Concept

Lesson

- 1 1 mathematical expression
 2 mathematical expression
 3 other 4 equation
 5 equation 6 other
 7 other 8 $12.5 + x = 15$
 9 $a - 12 = 7.5$ 10 number of boys
 11 the money with him now
 12 the height of other plant
 13 $2.15 + 36.5 = y$ 14 perimeter
 15 $12.5 + 3.25 = b$
- 2 1 $x = 125 - 65.5$ 2 $15 + 21 = x$
 3 $x = 90 - 75$ 4 $x = 145 + 20$
 5 $107.5 + x = 255$
- 1 \rightarrow d 2 \rightarrow a 3 \rightarrow b
 4 \rightarrow e 5 \rightarrow c

Assessment 1 on Lesson

First

- 1 b a mathematical expression.
 2 c an equation
 3 a the number of girls
 4 c the difference between the heights of his colleagues
 5 d $m = 4.25 - 3.79$

Second

- 1 \rightarrow b 2 \rightarrow a 3 \rightarrow e
 4 \rightarrow c 5 \rightarrow d

Lessons

- 1 1 2.79 2 15.41 3 4.25
 4 11.88 5 3.9 6 3.957

Guide Answers

- 7** 38 **8** 1
2 1 10 2 14.8 3 59.46
4 16 **5** 39 **6** 60
7 6 **8** 15.5
3 **1** 45 **2** 60 **3** 27
4 5.83 **5** 17.5

4 Answer by yourself.

Assessment 2 on Lessons

First

- 1** **d** 11.55
2 **c** 6.875
3 **c** $7 - (2.5 + 3.4)$
4 **a** 9.9

Second

- 1** 6.5 **2** 2.093 **3** 6.525

Third

- 1** $\rightarrow a = 63.8 - 35.2$ $a = 28.6$
2 $\rightarrow a = 24.8 + 35.2$ $a = 60$
3 $\rightarrow a = 10 - 6.15$ $a = 3.85$
4 $\rightarrow a = 45.16 - 13.48$ $a = 31.68$

Assessment on Concept

First

- 1** **c** an equation
2 **a** 13.40
3 **c** the amount he spent
4 **a** $m = 6.35 + 3.14$

Second

- 1** 0.5 **2** 1.68 **3** 2.51
4 $f = 9.07 - 0.28 = 8.79$

Third

- 1** \times **2** \checkmark **3** \times
4 \times

Concept

Lesson

- 1** **1** 2×3 **2** 2×5
3 $2 \times 2 \times 3$ **4** $2 \times 2 \times 2 \times 2$
5 $2 \times 3 \times 3$ **6** $2 \times 2 \times 2 \times 3$
7 $2 \times 2 \times 2 \times 2 \times 2$
8 $2 \times 2 \times 3 \times 3$
2 **1** 2 **2** 2
3 2 **4** 3
5 Prime number **6** 11
7 2, 3, 5, 7 **8** 3
9 16 **10** 3, 7
11 0, 2, 4, 6, 8 **12** 18
3 **1** 1 **2** 59
3 30 **4** has two factors only
5 prime **6** $2 \times 2 \times 3$
7 8
4 **1** \checkmark **2** \checkmark **3** \checkmark
4 \times **5** \times **6** \times
7 \checkmark **8** \checkmark **9** \times

Assessment 3 on Lesson

First

- 1** **c** 5 **2** **a** $2 \times 2 \times 3$ **3** **c** 11
4 **b** 14

Second

- 1** \rightarrow **c** **2** \rightarrow **a** **3** \rightarrow **b**

Third

- 1** 2 **2** 4 **3** 5×5 **4** 20

Fourth

- 1** $45 = 3 \times 3 \times 5$
2 $32 = 2 \times 2 \times 2 \times 2 \times 2$
3 $60 = 2 \times 2 \times 3 \times 5$

Lesson

- 1 **1** 4 **2** 4 **3** 9
4 1 **5** 8 **6** 12
7 15 **8** 14 **9** 8
10 18
- 2 **1** 16 **2** 45 **3** 17
4 2×13 **5** 1 **6** 7
7 11 **8** 97
- 3 **1** 2×7 **2** $2 \times 2 \times 2 \times 2$
3 one **4** the smaller number
5 14 **6** 1
7 12

Assessment 4 on Lesson

First

- 1** **b** 2, 7 **2** **c** 1
3 **a** 7 **4** **d** 30

Second

- 1** 28 **2** 1, 23 **3** 19
4 1 **5** 5

Third

- 1** 10 **2** 12

Fourth

GCF = 4

Lessons

- 1 **1** 6, 12, 21, 30, 42
2 0, 18, 30, 42, 60
3 10, 40, 50, 100
4 25, 45, 85, 150, 15
5 14, 35, 49, 63, 77
- 2 **1** **a** 0, 3, 6, 9, 12, 15, 18, 21, 24, 27
b 0, 6, 12, 18, 24 **c** 0, 6, 12, 18, 24
d 6
2 **a** 0, 6, 12, 18, 24, 30, 36
b 0, 4, 8, 12, 16, 20, 24 **c** 0, 12, 24
d 12
3 **a** 0, 8, 16, 24, 32

b 0, 4, 8, 12, 16, 20, 24, 28, 32, 36

c 0, 8, 16, 24, 32 **d** 8

4 **a** 0, 6, 12, 18, 24

b 0, 8, 16, 24, 32, 40, 48, 56

c 0, 24 **d** 24

3 **1** GCF = 2, LCM = 24

2 GCF = 4, LCM = 48

3 GCF = 3, LCM = 30

4 GCF = 2, LCM = 40

5 GCF = 6, LCM = 36

6 GCF = 7, LCM = 42

7 GCF = 14, LCM = 28

8 GCF = 12, LCM = 72

4 **1** 27 **2** 7

3 0 **4** 18

5 40 **6** Composite number

7 factor **8** multiples

9 the product of the two numbers

10 the largest number

Assessment 5 on Lessons

First

- 1** **c** 16 **2** **c** 8 **3** **a** 0
4 **b** 8 **5** **b** 15

Second

- 1** composite number
2 factor **3** multiples **4** One
5 prime

Third

1 GCF = 8, LCM = 16

2 GCF = 5, LCM = 60

Fourth

1 0, 8, 16, 24, 32, 40, 48

2 0, 12, 24, 36, 48

3 0, 24, 48

4 LCM = 24

Guide Answers

Lesson 1

- 1
 - 1 GCF = 4, LCM = 24
 - 2 GCF = 3, LCM = 18
 - 3 GCF = 4, LCM = 80
 - 4 GCF = 7, LCM = 42
 - 5 GCF = 3, LCM = 30
 - 6 GCF = 8, LCM = 48
 - 7 GCF = 15, LCM = 90
 - 8 GCF = 5, LCM = 75
- 2
 - 1 12 days 2 15 cm
 - 3 63 fruits 4 6 o'clock
 - 5 9 bags, 2 kg of oranges, 3 kg of apples
 - 6 4 groups, 3 doctors, 7 nurses
 - 7 12 groups, 2 pens, 3 notebooks 8 12 days

Assessment 6 on Lesson

First

- 1 **C** 6 2 **B** 24
- 3 **C** 12 4 **D** 18

Second

- 1 24 2 $3 \times 3 \times 3$
- 3 6 4 24

Third

- 1 LCM = 40 pencils
- 2 GCF = 6 bags

Assessment on Concept

First

- 1 **A** prime 2 **A** 20
- 3 **D** 36 4 **C** 6

Second

- 1 1 2 5 3 0
- 4 30 5 40, 5, 8

Third

- 1 **X** 2 **X** 3 **X**
- 4 **✓** 5 **✓**

Fourth

GCF = 7 groups, 3 pens, 5 notebooks

Unit 3

Concept 1

Lesson 1

- 1
 - 1 120 2 3,465
 - 3 5,052 4 868
 - 5 414 6 2,322
 - 7 4,284 8 40,050
 - 9 16,191 10 3,752
 - 11 3,900 12 12,375
- 2
 - 1 $5 \times 86 = 430$ 2 $7 \times 43 = 301$
 - 3 $8 \times 207 = 1,656$
 - 4 $9 \times 457 = 4,113$
 - 5 $83 \times 25 = 2,075$
 - 6 $29 \times 54 = 1,566$
 - 7 $47 \times 520 = 24,440$
 - 8 $17 \times 302 = 5,134$
 - 9 $25 \times 359 = 8,975$
 - 10 $29 \times 689 = 19,981$
 - 11 $47 \times 927 = 43,569$
- 3
 - 1 5×183 2 4×807
 - 3 36×27 4 19×375
 - 5 First model 6 Third model
 - 7 Third model 8 25×32
- 4
 - 1 $7 \times 10 = 70$ pounds
 - 2 $5 \times 100 = 500$ pounds
 - 3 $4 \times 10,000 = 40,000$ pounds
 - 4 $8 \times 200 = 1,600$ balls

Assessment 1 on Lesson

First

- 1 **A** First model 2 **C** 75×408
- 3 **D** 24×32 4 **A**

Second

- 1 $40 \times 23 = 920$ 2 $6 \times 247 = 1,482$
- 3 $33 \times 45 = 1,485$ 4 $75 \times 45 = 3,375$

Third

$5 \times 1,000 = 5,000$ m

Lesson 1

- 1
 - 1 $(8 \times 7) + (8 \times 20) = 56 + 160 = 216$
 - 2 $(6 \times 7) + (6 \times 20) = 42 + 120 = 162$
 - 3 $(7 \times 6) + (7 \times 300) = 42 + 2,100 = 2,142$
 - 4 $(9 \times 3) + (9 \times 80) + (9 \times 200)$
 $= 27 + 720 + 1,800 = 2,547$
 - 5 $(10 \times 70) + (10 \times 9) + (5 \times 70) + (5 \times 9)$
 $= 700 + 90 + 350 + 45 = 1,185$
 - 6 $(20 + 3) \times (60 + 8) = (20 \times 60) + (20 \times 8) +$
 $(3 \times 60) + (3 \times 8) = 1,200 + 160 + 180 + 24 = 1,564$
 - 7 $(20 + 4) \times (600 + 20 + 4)$
 $= (20 \times 600) + (20 \times 20) + (20 \times 4) +$
 $(4 \times 600) + (4 \times 20) + (4 \times 4) = 14,976$
- 2
 - 1 $(8 \times 40) + (8 \times 5) = 320 + 40 = 360$
 - 2 $(7 \times 200) + (7 \times 8) = 1,400 + 56 = 1,456$
 - 3 $(60 \times 50) + (60 \times 3) + (4 \times 50) + (4 \times 3) = 3,392$
 - 4 $(10 \times 40) + (10 \times 7) + (3 \times 40) + (3 \times 7) = 611$
 - 5 $(20 \times 400) + (20 \times 70) + (20 \times 4) + (4 \times 400) +$
 $(4 \times 70) + (4 \times 4) = 8,000 + 1,400 + 80 +$
 $1,600 + 280 + 16 = 11,376$
 - 6 $(60 \times 100) + (60 \times 70) + (60 \times 4) + (7 \times 100)$
 $+ (7 \times 70) + (7 \times 4) = 6,000 + 4,200 + 240 +$
 $700 + 490 + 28 = 11,658$
- 3
 - 1 $160 + 56 = 216$
 - 2 $5,400 + 63 = 5,463$
 - 3 $2,800 + 120 + 420 + 18 = 3,358$
 - 4 $2,000 + 140 + 300 + 21 = 2,461$
 - 5 $10,000 + 1,600 + 80 + 2,000 + 320 + 16 = 14,016$
 - 6 $12,000 + 4,800 + 180 + 800 + 320 + 12 = 18,112$
- 4
 - 1 1,215 2 1,095 3 10,059
 - 4 7,904
- 5
 - 1 $8 \times (100 + 70 + 8)$ 2 6×237
 - 3 $(40 + 5) \times (30 + 6)$
 - 4 $(70 \times 10) + (70 \times 5) + (2 \times 10) + (2 \times 5)$
 - 5 37×520
 - 6, 7 Answer by yourself
- 6
 - 1 5×602 2 $400 + 20$ 3 235
 - 4 $(50 + 6) \times (90 + 3)$ 5 83×57
 - 6 56×56 7 48×207
 - 8 First model 9 Third model
 - 10 Second model

Assessment 2 on Lesson 1

First

- 1
 - b 7×504 2 a 67×23 3 a
 - 4 c $4 \times (600 + 9)$
 - 5 a $50 + 6$

Second

- 1 $7 \times (7,000 + 400 + 80) = 52,360$
- 2 40, 6, 40, 6 3 24×506
- 4 6,230 5 500, 5

Third

- 1 178 2 1,665 3 26,961

Assessment on Concept 1

First

- 1
 - c 5,000 2 b $2 \times 1,000$ 3 a
 - 4 c 42×69 5 b 12×302

Second

- 1 10,000 2 7 3 12×57
- 4 623 5 900, 3

Third

- 1 94 2 322

Fourth

$12 \times 25 = 300$ passengers

Concept 2

Lessons

- 1
 - 1 328 2 5,472 3 1,848
 - 4 74,592 5 975 6 2,700
 - 7 5,508 8 33,318 9 147,852
 - 10 291,504 11 634,372 12 309,696
- 2
 - 1 114,384 2 158,100 3 118,918
 - 4 454,464 5 258,468 6 233,988
- 3
 - 1 816 2 777 3 12,772
 - 4 15,695 5 85,428 6 230,940
- 4
 - 1 Actual product: $87,900 \approx$ Estimate 70,000
 - 2 Actual product: $167,869 \approx$ 20,000
 - 3 Actual product: $32,396 \approx$ 20,000
 - 4 Actual product: $215,016 \approx$ 180,000

Guide Answers

- 1 $22 \times 25 = 550$ passengers
- 2 Area = $256 \times 62 = 15,872$ square meters
- 3 $9,560 \times 34 = 325,040$ piasters
- 4 $1,285 \times 21 = 26,985$ cm
- 5 $9,865 \times 12 = 118,380$ pounds
- 6 $1,023 \times 18 = 18,414$ pounds
- 7 $8,234 \times 16 = 131,744$ pounds
- 8 $2,445 \times 45 = 110,025$ g

Assessment on Concept

First

- 1 a $5,403 \times 67$ 2 b $3,052 \times 43$ 3 a
- 4 d $75,150$ 5 a $69,000$

Second

- 1 116,840 2 576,448 3 157,250

Third

$$18 \times 15 + 18 \times 25 = 270 + 450 = 720 \text{ pounds}$$

Theme 2

Unit 4

Concept

Lessons

- 1 1 24 2 17 (R2) 3 28 (R1)
- 4 93 5 63 6 89 (R2)
- 7 473 8 123 9 112 (R2)
- 10 689 11 918 12 769 (R1)
- 13 1,407 (R2)
- 2 1 47 2 67 (R11) 3 34
- 4 45 5 63 6 35
- 7 237 8 205 9 357
- 10 392 11 605
- 12 1,654 13 1,233 (R42)
- 3 1 $552 \div 23 = 24$

- 2 $1,522 \div 24 = 63$ (R10)
- 3 $4,635 \div 45 = 103$
- 4 $7,776 \div 32 = 243$
- 5 $1,856 \div 15 = 123$ (R11)
- 6 $10,016 \div 32 = 313$
- 7 $8,575 \div 35 = 245$
- 8 $7,631 \div 21 = 363$ (R8)

- 4 1 1,248, 0
- 2 16,817, 31, 542, 15
- 3 53,328, 24, 2,222, 0
- 4 25,716
- 5 10,092, 42, 240, 12

- 5 1 Solution: 406 , Estimate: 400
- 2 Solution: 1,147 (R2) , Estimate: 1,100
- 3 Solution: 4,002 (R6) , Estimate: 4,000
- 4 Solution: 345 , Estimate: 300
- 5 Solution: 46 (R74) , Estimate: 50
- 6 Solution: 48 (R55) , Estimate: 50
- 7 Solution: 412 , Estimate: 500
- 8 Solution: 2,555 , Estimate: 2,500
- 9 Solution: 251 (R15) , Estimate: 250
- 10 Solution: 308 , Estimate: 300

Assessment on Lessons

First

- 1 c $1,960 \div 8 = 245$
- 2 a 14 3 d 0
- 4 c 4,035 5 a 5

Second

- 1 817 (R6)
- 2 302 (R10)
- 3 3,208 (R10)

Third

- 1 $400 \div 4 = 100$ LE
- 2 $138 \div 6 = 23$ people

Assessment on Concept

First

- 1 **a** 146 2 **d** 4
3 **c** 450 4 **a** 20

Second

- 1 5,026 (R6) 2 3,859 3 258
4 3,012 (R9)

Third

- 1 9,000 2 5 3 340,000
4 36,000

Fourth

- 1 $7,280 \div 5 = 1,456$ pounds
2 $168 \div 12 = 14$ groups

Concept

Lessons

- 1 1 15 2 28 (R2) 3 26
4 208 (R2) 5 252 6 131
7 295 8 472 (R2) 9 705
10 2,004 11 3,059 12 7,006
- 2 1 24 2 11 3 125
4 205 5 303 6 124 (R12)
7 105 8 214 9 347 (R17)
10 2,581 11 2,214 12 2,451
- 3 1 123 2 189 3 1,324
4 1 35 2 6,048 3 4
4 1,998 5 4,876 6 3,479
7 105 8 102 9 111
10 14,042
- 5 1 $140 \div 12 = 11$ (R8) \rightarrow 12 trays are needed
2 Silk = $11,650 - 4,950 = 6,700$ m
Wool = $6,700 - 3,500 = 3,200$ m
Total = $11,650 + 6,700 + 3,200 = 21,550$ m

- 3 Mighty Steel: $3 \times 100,000 = 300,000$ LE

Silver Steel: $5 \times 70,000 = 350,000$ LE

Money saved = $350,000 - 300,000 = 50,000$ LE

- 4 Zeinab used = $12 \times 18 = 216$ squares

Reem used = $13 \times 13 = 169$ squares

The difference = $216 - 169 = 47$ squares

- 5 Profit: $(30 \times 25) \times 3 = 2,250$ LE

Basketball = $2,250 - 1,134 = 1,116$ LE

- 6 The distance = $465 - (124 + 210)$
 $= 465 - 334 = 131$ km

- 7 The price of one book = $1,875 \div 25 = 75$ pounds

The price of 25 books = $36 \times 75 = 2,700$ pounds

- 8 The remaining money = $163,500 - 85,500 -$
 $78,000$ pounds

Value of each installment = $78,000 \div 24$
 $= 3,250$ pounds

- 9 Total number of students = $456 + 419$
 $= 875$ students

Number of students in each class = $875 \div 25$
 $= 35$ students

- 10 The area of land = $124 \times 85 = 10,540$ square
meters

The number of basins = $10,540 \div 62 = 170$ basins

Assessment on Concept

First

- 1 **d** 437 2 **b** 25 3 **c** 26
4 **a** $22 \times 36 + 10$ 5 **b** 40

Second

- 1 240,000 2 500 3 0
4 8 5 18,000

Third










































































































The remaining people = $205 - 40 = 165$ persons

Number of minibuses = $165 \div 11 = 15$ minibuses

Unit 5






Concept

Lessons

- 1**
- | | | |
|---|--|---|
|  120 |  900 |  101,000 |
|  6.5 |  0.26 |  0.017 |
|  5 |  75 |  256 |
|  0.02 |  0.0036 |  0.00012 |
|  32.5 |  412 |  3,190 |
|  4.212 |  0.5512 |  0.03601 |
|  0.2 |  36 |  170 |
|  0.635 |  0.4214 |  0.0031 |
- 2**
- | | | |
|---|---|---|
|  12.5 |  2.4 |  12.15 |
|  0.84 |  1.56 |  0.017 |
|  16.65 |  86.04 |  0.759 |
|  0.04 |  0.405 |  19.05 |
|  28.8 |  5.85 |  81.4 |
|  56.7 |  223.6 |  246 |
|  136.4 |  93.15 |  8.395 |
|  18.6 |  36.24 |  40.32 |
- 3**
- | | | |
|---|---|---|
|  5 |  33 |  20 |
|  7 |  3 |  2 |
|  0.5 |  0.5 |  0.7 |
|  2.4 |  2.4 |  17 |
|  10 |  100 |  1,000 |
|  0.1 |  0.01 |  0.001 |
|  1,000 |  100 |  10 |
|  0.1 |  1,000 |  0.001 |
- 4**
- | | | |
|---|---|---|
|  = |  < |  < |
|  < |  > |  < |
|  = |  = |  > |
|  > | | |
- 5**
- | | |
|---|---|
|  →  |  →  |
|  →  |  →  |
- 6**
- | | | |
|---|---|---|
|  1.5 |  4 |  12 |
|  3 |  12 |  2, left |
|  10 |  0.001 |  0.4, 40 |
|  20 |  0.1 |  800 |
|  2 |  1.1 |  3 |

Assessment 1 on Lessons

First

- | | | |
|---|---|---|
|  800 |  0.3 |  0.045 |
|  14 |  525 | |






Second

- | | | |
|---|---|---|
|  = |  > |  > |
|  < |  < | |





















































Third

- | | |
|---|---|
|  →  |  →  |
|  →  |  →  |

Fourth

- | | | |
|---|---|---|
|  12 |  33.68 |  3, left |
|  0.1 |  0.092 | |

Lessons

- 1**
- | | | |
|--|--|--|
|  0.06 |  0.16 |  0.48 |
|  0.07 |  0.12 |  0.45 |
|  0.28 |  0.45 |  0.77 |
|  0.48 | | |
- 2**
- | | |
|---|---|
|  $0.3 \times 0.4 = 0.12$ |  $0.7 \times 0.8 = 0.56$ |
|  $0.4 \times 0.8 = 0.32$ |  $0.2 \times 0.2 = 0.04$ |
|  $0.8 \times 0.8 = 0.64$ |  $0.1 \times 0.7 = 0.07$ |
|  $0.3 \times 1.3 = 0.39$ |  $0.6 \times 1.7 = 1.02$ |
|  $1.1 \times 0.2 = 0.22$ | |
|  $0.3 \times 1.7 = 0.51$ | |
- 3**
- | | | |
|---|---|---|
|  3.78 |  0.376 |  121.8 |
|  3.78 |  1.824 |  182.7 |
|  0.54 |  46.62 |  0.648 |
|  283.5 |  141.75 |  2.898 |
|  148.4 |  111.851 |  2.422 |
|  6.069 | | |
- 4**
- | | |
|---|---|
|  $0.4 \times 0.52 = 0.208$ |  $7 \times 2.3 = 16.1$ |
|  $0.3 \times 21.4 = 6.42$ |  $0.27 \times 4.3 = 1.161$ |
|  $3.5 \times 45 = 157.5$ |  $0.92 \times 0.54 = 0.4968$ |
|  $47 \times 0.142 = 6.674$ |  $4.7 \times 3.49 = 16.403$ |
- 5**
- | | | |
|--|--|--|
|  1.6×0.8 |  0.9×0.3 |  50.3×7.32 |
|  5.07×22.3 |  1,200 |  7.2 |
|  = |  < | |

Assessment 2 on Lessons

First

- 1 $0.2 \times 0.2 = 0.04$ 2 $0.4 \times 0.7 = 0.28$
 3 $0.6 \times 0.2 = 0.12$ 4 $0.4 \times 1.3 = 0.52$
 5 $0.2 \times 1.6 = 0.32$

Second

- 1 $2.9 \times 0.7 = 2.3$
 2 $10.08 \times 90.2 = 909.216$
 3 $852 \times 0.24 = 204.48$

Third

- 1 0.2 2 0.3
 3 2.5 4 400

Fourth

The area of one wall = $15 \times 4 = 60$ square meter
 The painted area = $60 \times 4 = 240$ square meter

Lessons

- 1 $[35 \times 12 = 70 + 350 = 420]$

- 1 42 2 4.2 3 4.2
 4 0.42 5 0.42 6 4.2
 7 42 8 0.042

- 2 $[105 \times 24 = 420 + 2,100 = 2,520]$

- 1 252 2 25.2 3 25.2
 4 2.52 5 2.52 6 25.2
 7 252 8 0.252

- 3 1 25.2 2 1.84 3 54.63

- 4 6.912 5 26.963 6 70.056
 7 481.91 8 42.875 9 10.795
 10 96.672 11 72.072 12 78.48

- 4 1 = 2 > 3 <
 4 = 5 < 6 =
 7 < 8 > 9 > 10 <

- 5 1 Nada paid = $26 \times 43.5 = 1,131$ pounds
 2 Khaled paid = $9.5 \times 12.7 = 120.65$ pounds
 3 The price = $12 \times 22.25 = 267$ LE
 4 $10 \times 92.5 = 925$ pounds,
 $6.5 \times 58 = 377$ pounds
 The merchant paid = $925 + 377 = 1,302$ pounds

- 5 $79 + 36 = 115$ km
 $11.5 \times 6 = 69$ km

Assessment 3 on Lessons

First

- 1 0.825 2 2.1 3 0.0006
 4 0.03 5 0.03

Second

- 1 $12.88 \approx 12.9$ 2 $2.044 \approx 2.04$
 3 $128.96 \approx 129$

Third

- 1 12.204 2 12.204 3 1220.4
 4 12.204 5 1.2204 6 0.12204

Fourth

- 1 > 2 > 3 = 4 <

Lessons

- 1 1 $8,523 \times 0.001 = 8.523$

- 2 $954 \times 0.001 = 0.954$

- 3 $25 \times 0.001 = 0.025$

- 4 $78 \times 1,000 = 78,000$

- 5 $2.5 \times 1,000 = 2,500$

- 6 $1.24 \times 1,000 = 1,240$

- 7 $23 \times 1,000 = 23,000$

- 8 $0.753 \times 1,000 = 753$

- 9 $235 \times 0.001 = 0.235$

- 10 $3,235 \times 0.001 = 3.235$

- 11 $32 \times 100 = 3,200$

- 12 $3.35 \times 100 = 335$

- 13 $0.12 \times 10 = 1.2$

- 14 $45 \times 0.01 = 0.45$

- 15 $1,247 \times 0.01 = 12.47$

- 16 $7.5 \times 10 = 75$

- 17 $7.5 \times 1,000 = 7,500$

- 18 $85 \times 0.001 = 0.085$

- 19 $235 \times 0.1 = 23.5$

- 20 $2.8 \times 10 = 28$

- 2 1 6,520 2 0.549 3 0.062

- 4 63,500 5 0.45 6 2.8

Guide Answers

- 7** 3,200 **8** 0.045 **9** 45 **10** 25.6
3 **1** > **2** = **3** < **4** >
5 > **6** > **7** < **8** >
9 < **10** >
4 **1** ✗ **2** ✓ **3** ✓ **4** ✗
5 ✗ **6** ✗ **7** ✓ **8** ✓
9 ✓ **10** ✗

- 1** The increase = $145 - 134 = 11$ cm
2 Hazem paid = $7 \times 23.5 = 164.5$ pounds
3 We ght of mangoes = $5 \times 9,500 = 47,500$ g
 Weight of peaches = $3 \times 4,600 = 13,800$ g
 Total = $47,500 + 13,800 = 61,300$ g
4 The sum = $145 + 164 = 309$ cm
 The difference = $164 - 145 = 19$ cm
5 $1,250 + 2,450 = 3,700$ mL
 $4,000 - 3,750 = 250$ mL

Assessment 4 on Lessons

First

- 1** **c** 7,850 **2** **a** 0.46 **3** **d** 5,200
4 **a** 10 **5** **b** 2.5

Second

- 1** $456 \times 0.01 = 4.56$
2 $5.9 \times 1,000 = 5,900$
3 $4,258 \times 0.01 = 42.58$
4 0.001

Third

- 1** > **2** = **3** < **4** <

Fourth

- The cat: $7 + 0.45 = 7.45$ kg
 The dog: $17 + 0.12 = 17.12$ kg
 Total = $7.45 + 17.12 = 24.57$ kg

Assessment on Concept

First

- 1** **c** 0.3×0.5 **2** **b** **3** **c** 4
4 **d** 480 **5** **a** 0.024

Second

- 1** 0.001 **2** 0.0288
3 $4,258 \div 0.001 = 4.258$ **4** 0.28 **5** 0.28

Third

- 1** < **2** > **3** < **4** <

Fourth

- 1** The distance = $58.7 \times 9 = 528.3$ km
2 The price = $20 \times 65.5 = 1,310$ pounds

Concept

Lessons

- 1** **1** 1.7 **2** 0.08 **3** 0.102
4 450 **5** 2,300 **6** 45,000
7 0.06 **8** 0.0012 **9** 0.125
10 9 **11** 27 **12** 420
13 0.424 **14** 0.0813 **15** 0.417
16 6175 **17** 4.572 **18** 27,040
19 0.007 **20** 0.0096 **21** 0.034
22 56.3 **23** 6,375 **24** 4,200
25 0.635 **26** 0.4214 **27** 0.031
2 **1** 8 **2** 632 **3** 20,000
4 6 **5** 4 **6** 0.3
7 3 **8** 7 **9** 9
10 0.24 **11** 0.025 **12** 0.96
13 0.01 **14** 0.01 **15** 0.001
16 10 **17** 100 **18** 1,000
19 0.001 **20** 0.01 **21** 0.1
22 10 **23** 0.001 **24** 1,000
3 **1** 0.1, 10 **2** 1,000, 0.001
3 10, 0.1 **4** 100, 0.01
5 0.01, 100 **6** 10, 0.1
7 100, 0.01 **8** 0.1, 10
9 0.001, 1,000 **10** 0.001, 1,000
11 1,000, 0.001 **12** 0.001, 1,000
4 **1** → **b** **2** → **c** **3** → **a**
4 → **c** **5** → **d**
5 **1** < **2** > **3** =
4 < **5** = **6** =
7 < **8** > **9** > **10** =

1 $65 \times 1,000 = 65,000$
 $65 \div 0.001 = 65,000$

2 $2.5 \times 100 = 250$
 $2.5 \div 0.01 = 250$

3 $5 \times 1,000 = 5,000$
 $5 \div 0.001 = 5,000$

4 $923 \times 0.001 = 0.923$
 $923 \div 1,000 = 0.923$

5 $23 \times 1,000 = 23,000$
 $23 \div 0.001 = 23,000$

6 $25 \times 0.1 = 2.5$
 $25 \div 10 = 2.5$

7 $225 \times 0.001 = 0.225$
 $225 \div 1,000 = 0.225$

8 $200 \times 0.001 = 0.2$
 $200 \div 1,000 = 0.2$

9 $2.5 \times 10 = 25$
 $2.5 \div 0.1 = 25$

10 $42 \times 10 = 420$
 $42 \div 0.1 = 420$

Assessment 5 on Lessons

First

1 0.45	2 0.025	3 1,250
4 57.4	5 0.56	6 20
7 0.1	8 0.01	9 785
10 1,000		

Second

1 $137 \times 0.01 = 1.37$
 $137 \div 100 = 1.37$

2 $86 \times 1,000 = 86,000$
 $86 \div 0.001 = 86,000$

3 $8,102 \times 0.001 = 8.102$
 $8,102 \div 1,000 = 8.102$

Third

1 = 2 < 3 < 4 <

Lessons 2&3

1 26.2	2 2.955	3 0.947
4 6.37	5 0.014	6 0.63
7 24.3	8 4.03	

2 1 0.35
 4 5.04
 7 1.14

3 1 113.1
 4 2.56
 7 505
 10 9.88

4 1 0.53
 4 310
 7 5.3
 10 16.43
 13 164.3
 16 1,643

5 1 =
 4 =
 7 <

6 1 $350 \div 12.5 = 28$ days
 2 $99 \div 5 = 19.8$ pounds
 3 $214.2 \div 9 = 23.8$ pounds
 4 $728 \div 5 = 145.6$ pounds
 5 $210 \div 4 = 52.5$ L
 6 $(6 \times 4.25) \div 2 = 12.75$ kg
 7 $3,000 \times 14 = 42,000$ m = 42 km
 $42 \div 14 = 56$ km
 8 $(20 - 4.5) \div 5 = 3.1$ kg

2 2.615

5 6.25

8 2.52

2 734

5 350

8 1.2

11 8.41

2 3.1

5 53

8 310

11 164.3

14 1.643

2 <

5 >

8 >

3 0.805

6 5.5

9 1.5

3 207

6 1,167.5

9 304

12 11

3 530

6 3.1

9 16.43

12 1.643

15 16.43

3 >

6 <

9 > 10 =

Assessment 6 on Lessons

First

1 29	2 133	3 25
------	-------	------

Second

1 4,340	2 434	3 43.4
4 43,400	5 4.34	6 12
7 1.2	8 12	9 120
10 0.012		

Third

1 → b	2 → a	3 → d
4 → e	5 → c	

Assessment on Concept

First

1 a 0.045	2 b 6	3 d 100
-----------	-------	---------

Guide Answers

- 4) **a** 9.6×10 5) **c** 25

Second

- 1) 0.1 2) 180 3) 100
4) 453.6 5) 0.12

Third

- 1 \rightarrow **c** 2 \rightarrow **a** 3 \rightarrow **d** 4 \rightarrow **b**

Fourth

Number of bags = $83.5 \div 0.45 = 1,850$ bags

Unit 6

Concept 1

Lessons

- 1) 1 4.7 2 5.9 3 4.99

- 4) 22.8 5) 1.68 6) 3

- 7) 40 8) 0.4 9) 30.2

- 10) 33.8 11) 17.1 12) 1.41

- 13) 7.5 14) 0 15) 5

- 2) 1 25 2 7.3 3 0.75

- 4) 200 5) 12.2 6) 0

- 7) 30.5 8) 3.97 9) 81.9

- 10) 32 11) 31.3 12) 2.1

- 13) 90 14) 51 15) 16

- 3) 1 3.36 2 0.35 3 1.5

- 4) 40 5) 0.6 6) 2.9

- 7) 4 8) 10 9) 0.8

- 4) 1 5 2 26.6 3 31.5

- 4) 9.75 5) 9 6) 9

- 5) 1 \rightarrow **c** 2 \rightarrow **d**

- 3 \rightarrow **a** 4 \rightarrow **b**

- 6) 1) $(5.9 + 12.6) \times 10 = 18.5 \times 10 = 185$

- 2) $(5.25 + 3.1) \div 0.1 = 8.35 \div 0.1 = 83.5$

- 3) $0.542 \times 100 + 2.5 = 54.2 + 2.5 = 56.7$

- 4) $456 \div 10 + 4.4 = 45.6 + 4.4 = 50$

- 5) $(93 \div 0.3 + 114.7) \div 5 = (310 + 114.7) \div 5$

- $= 424.7 \div 5 = 84.94$

- 6) $[12.5 - (30.5 + 5.5 + 4)] \times 10$

- $= [12.5 - 40] \times 100 = 8,550$

- 7) $(7.6 \times 100 - 34.3 + 12.4) \div 0.1 = 738.1 \div 0.1$

- $= 7,381$

- 8) $4.5 \div 0.1 + 5.5 \times 10 = 45 + 5.5 \times 10$

- $= 45 + 55 = 100$

- 7) 1) $(16.5 - 1.5) \div 5 = 3$ kg

- 2) $2.5 \times 14 + 54.2 = 35 + 54.2 = 89.2$ km

- 3) $6 \times 12 \div 8 = 9$ balloons

- 9) 1) 20, 23, 26 Rule: $n + 3$

- 2) 33, 38, 43 Rule: $n + 5$

- 3) 34, 30, 26 Rule: $n - 4$

- 4) 40, 30, 20 Rule: $n - 10$

- 5) 64, 128, 256 Rule: $n \times 2$

- 6) 243, 729, 2,187 Rule: $n \times 3$

- 7) 16, 8, 4 Rule: $n \div 2$

- 9) 1) 8, 10, 27 Rule: $n - 7$

- 2) 20, 38, 48 Rule: $n + 8$

- 3) 8, 11, 13 Rule: $n + 3$

- 4) 8, 9, 10 Rule: $n + 5$

- 5) 13, 11, 15 Rule: $n \div 3$

- 6) 18, 9, 12 Rule: $n \times 3$

- 7) 3, 18, 22 Rule: $n \div 2$

- 8) 18, 24, 30 Rule: $n \times 3$

- 10) 1) 3, 25, 7, 45, 11 2) 9, 9, 45, 24, 81

- 3) 16, 20, 24, 28, 32

- 4) 8, 9, 10, 11, 12

Assessment on Concept

First

- 1) **a** 8 2) **b** 0.6

- 3) **b** $(3.5 + 3.7) \times 0.8$ 4) **d**

- 5) **c** $5.6 + 0.5 - 0.6$ 6) **c** $n \times 4$

- 7) **a** $n - 12$

Second

- 1) 11.2 2) 20 3) 48.4

Third

- $(15.75 - 3.75) \div 16 = 0.75$ L

Guide Answers

Assessment on Unit

First

- [1] c Forty-five thousand and four hundredths
 [2] a 6,020,400,080 [3] b 7.52
 [4] a 57.024 [5] c 48.0
 [6] c $3 + 0.07$ [7] d 8.523 [8] b <
 [9] c $0.3 - 0.25$ [10] c $0.22 + 0.1$

Second

- [1] 65,000,000 005 [2] Hundredths, 0 09
 [3] 5.647 [4] 43.8 [5] 420.108
 [6] 459.5 [7] 66 [8] 4
 [9] 0.38 [10] 1

Third

- [1] → b [2] → a [3] → d
 [4] → e [5] → c

Fourth

- [1] < [2] < [3] >
 [4] > [5] <

Fifth

- [1] $25,327 + 47,128 = 72,455$ liters
 [2] $446.3 - 267.53 = 178.77$ km
 [3] $70\ 45 + 67\ 40 = 137\ 85$ pounds
 $342.5 - 137.85 = 204.65$ pounds

Assessment on Unit

First

- [1] c an equation, [2] c the other number
 [3] b $(26.3 - 10.04) - 12.4$
 [4] b $y = 2.63 - 1.2$
 [5] d other [6] a $2 \times 2 \times 2$
 [7] d their product [8] c 9
 [9] a 12 [10] d 10, 15

Second

- [1] 1.989 [2] odd, 2 [3] 2.23
 [4] 7 [5] $4.02 + a = 12$
 [6] 1, 5, 25 [7] 5×5 [8] 30

9 0

10

S
0.12 725

Third

GCF = 6 LMC = 36

Fourth

GCF = 5 groups
 5 bouquets
 5 blue roses and 3 red roses

Cumulative Assessment on Units 1&2

First

- [1] Hundredths [2] 15.89
 [3] 2, 3, 3 [4] 0

Second

- [1] d 0.425 [2] c $4 + 0.06$
 [3] c 2 [4] d 4

Third

- [1] > [2] < [3] < [4] <

Fourth

- [1] $100.3 + 64.7 = 165$ km
 $225 - 165 = 60$ km
 [2] GCF = 8, LCM = 48

Cumulative Assessment on Units 1&2

First

- [1] 2, even [2] 23, 29
 [3] 350.208 [4] 5,000,030,000.099

Second

- [1] c $3.5 + m = 8.7$
 [2] c 7.825 [3] a >

Third

- [1] x [2] ✓ [3] ✓

Guide Answers

Fourth

GCF = 4 groups
4 girls and 3 boys

Assessment on Unit

First

- | | | |
|------------------|-----------------------|------------|
| 1 b = | 2 c < | 3 d |
| 4 c | 5 b 62 X 57 | 6 a |
| 7 b | 8 c 4,095 X 46 | |
| 9 c 1,000 | 10 a 12 X 260 | |

Second

- | | | |
|-----------|----------|----------|
| 1 900,000 | 2 10,000 | 3 7 |
| 4 100 | 5 20,3 | 6 3,504 |
| 7 65 X 38 | 8 990 | 9 60,240 |
| 10 3,016 | | |

Third

- 1 **c** 2 **a** 3 **d** 4 **b**

Fourth

- 1 382,644 2 144,504 3 402,536

Fifth

20 X 140 = 2,800 g
20 X 120 = 2,400 mL
2,400 X 35 = 84,000 mL = 84 L

Cumulative Assessment on Units 1-3

First

- | | |
|-------------------------|-----|
| 1 $0.4 - 0.025 = 0.375$ | 2 7 |
| 3 10, 2, 5, 5 | |

Second

- | | | |
|--------------------|-------------------|---------------|
| 1 c 21 X 16 | 2 a 12.084 | 3 c 12 |
|--------------------|-------------------|---------------|

Third

- | | | |
|----------|---------|-----------|
| 1 16,944 | 2 9,936 | 3 192,256 |
|----------|---------|-----------|

Fourth

- | | | |
|-----|-----|-----|
| 1 ✗ | 2 ✓ | 3 ✓ |
|-----|-----|-----|

Fifth

17 + 19 = 36 students
36 X 25 = 900 students

Cumulative Assessment 2 on Units 1-3

First

- | | |
|---|-----------------|
| 1 c the product of the two numbers | |
| 2 b | 3 d 0.06 |

Second

- | | | |
|---------|------|--------|
| 1 2,346 | 2 61 | 3 4.77 |
|---------|------|--------|

Third

- | | | |
|-----|-----|-----|
| 1 = | 2 < | 3 > |
|-----|-----|-----|

Fourth

- | | | |
|------------|------------|------------|
| 1 b | 2 c | 3 a |
|------------|------------|------------|

Fifth

- | |
|-----------------------------|
| 1 23 X 235 = 5,405 piasters |
| 2 GCF = 6, LCM = 36 |

Assessment on Unit

First

- | | | |
|-------------------|---------------------|---------------|
| 1 c 428 | 2 b 323 X 25 | 3 a |
| 4 c 600 | 5 a 24,000 | 6 b 50 |
| 7 d 207 | 8 a 65 | 9 d 0 |
| 10 a 8,935 | | |

Second

- | | | |
|----------|------|---------|
| 1 24,000 | 2 80 | 3 3,004 |
| 4 5,012 | 5 8 | |

Third

Answer by yourself.

Fourth

- | | | |
|-----|-----|-----|
| 1 = | 2 > | 3 = |
| 4 > | 5 < | |

Fifth

- | |
|------------------------------|
| 1 4,530 ÷ 15 = 302 pounds |
| 2 570 + 600 = 1,170 students |
| 1,170 ÷ 26 = 45 students |

Cumulative Assessment on Units 1-4

First

- | | |
|----------------|---------------|
| 1 0.03 + 0.006 | 2 1, 3, 5, 15 |
| 3 4 | 4 72, 8, 8 |

Second

- [1] **c** prime [2] **c** 0.09
[3] **a** < [4] **d** 12

Third

- [1] 124 [2] 34 (R15)

Fourth

- [1] $288 \div 24 = 12$ pounds
[2] $1.45 - 1.39 = 0.06$ m
[3] GCF = 3, LCM = 18

Cumulative Assessment 2
on Units 1-4

First

- [1] 806 [2] 131,874 [3] 15.647 [4] 618.147

Second

- [1] **c** Tenths [2] **b** 8
[3] **a** 0 [4] **a** $16,884 \div 42$

Third

- [1] > [2] < [3] = [4] <

Fourth

- 1 LCM = 24 days
2 1.205, 10.25, 12.05, 120.5, 1,205

Assessment on Unit 130

First

- [1] **a** 0.036 [2] **b** 4.5
[3] **c** 0.3×0.2 [4] **a**
[5] **d** 0.015 [6] **d** 100
[7] **c** 3.624 [8] **b** 0.24×6.2
[9] **a** [10] **d** 4.5×10

Second

- [1] 12 [2] $12 \times 28 = 336$
[3] $0.29 \times 1,000 = 290$ [4] 0.96
[5] 9.32 [6] 0.1 [7] 20,000
[8] 100 [9] 0.02 [10] 8

Third

- [1] = [2] >
[3] = [4] <

Fourth

- [1] 15.725 [2] 396.592 [3] 294.784
[4] 91 [5] 5 [6] 2.54

Fifth

- 1] $3 \times 4.75 = 14.25$ pounds
4 $\times 1.25 = 5$ pounds
 $14.25 + 5 = 19.25$ pounds
2] $17 \times 2.25 = 38.25$ pounds
 $50 - 38.25 = 11.75$ pounds
3] $243.75 \div 0.75 = 325$ mottles
4] Width = $10.25 \div 4.1 = 2.5$ m.
 $P = (2.5 + 4.1) \times 2 = 13.2$ m.

Cumulative Assessment 1
on Units 1-5

First

- [1] **b** 10 [2] **d** 54 [3] **c** 3

Second

- [1] 7.32 [2] 0.654
[3] 1, 2, 4, 7, 14, 28

Third

- [1] 2.4 [2] 5.145 [3] 70.07 [4] 25.35

Fourth

- [1] < [2] < [3] <

Fifth

$1.035 - 0.825 = 0.21$ kg

Cumulative Assessment
on Units 1-5

First

- [1] **c** 9.75 [2] **b** 5
3 **a** the sum of the two numbers [4] **b** 1,000

Second

- [1] 708.309 [2] 6, 12, 18, 24, 30
[3] 0.918

Third

- [1] 2.45 [2] 753 45
[3] 0.815 [4] 20

Guide Answers

Fourth

- 1 = 2 < 3 > 4 >

Assessment on Unit

First

- 1 a 9.5 2 b $6 - 2.7$
 3 c $1.5 \times 1.2 - 0.5$
 4 b divide 2.5 by 0.5, then add 1.2
 5 c $1.3 + 0.3 - 0.5$
 6 a $n + 11$ 7 c 13
 8 b 2, 0.4, 0.08, 0.016
 9 b 1 10 $n \times 3 + 1$

Second

- 1 99 2 5.5 3 26, 42
 4 18, 21 5 10

Third

- 1 $(3.62 - 2.1) \times 3 = 1.52 \times 3 = 4.56$
 2 $85 \div 0.5 + 136.7 = 170 + 136.7 = 306.7$

Fourth

- 1 2, 4.5, 7, 9.5, 12
 2 5, 7.5, 12.5, 22.5, 42.5
 3 40, 200, 1,000, 5,000, 25,000

Fifth

$$38,700 \div 120 = 322.5 \text{ m}$$

Cumulative Assessment

on Units 1-6

First

- 1 0.38 2 7
 3 33.8 4 14.8

Second

- 1 a equation 2 b 4×807
 3 b 25,025 4 b 0.01

Third

- 1 d 2 a
 3 b 4 e 5 c

Fourth

- 1 13, 11, 15 rule $n \div 3$
 2 50.96 3 23

Cumulative Assessment

on Units 1-6

First

- 1 0.4 2 28
 3 4

	X	40	5
4	70	2800	350
	5	200	25

Second

- 1 b $5 + 3.21$ 2 a 7
 3 a 0 4 a 2, 3.5, 5, 6.5, 8

Third

- 1 c 2 d
 3 c 4 b

Fourth

- 1 8, 11, 13 Rule: $(n + 3)$
 2 105.24 3 2,760

Guide Answers

First Term

First

Choose

- | | |
|----------------------------|-----------------|
| 1 7,000,050,000.07 | 3 4.45 |
| 2 Hundred Thousand | 5 400 |
| 4 $2 \frac{53}{1000}$ | 7 0.609 |
| 6 0.060 | 9 40 056 |
| 8 5,200.023 | 11 2.526 |
| 10 8 | 13 25.8 |
| 12 0.26 | 15 0.805 |
| 14 450 | 17 right |
| 16 increases | |
| 18 23.023 | 19 $824 + 0.12$ |
| 20 increases from 0.7 to 7 | 21 32.63 |
| 22 450.204 | 23 8.5 |
| 24 100 | 25 56.8 |
| 26 > | 27 56.02 |
| 28 2.456 | 29 0.01 |
| 30 381.66 | 31 < |
| 32 39.02 | 33 hundredth |
| 34 < | 35 3 tenths |
| 36 75.34 | 37 78 |
| 38 4,040.44 | 39 75.599 |
| 40 403 | 41 0.744 |
| 42 3795 | 43 Second model |
| 44 $0.58 + 0.37$ | 45 2 |
| 46 72.84 | 47 3.98 |
| 48 4.55 | 49 0.53 |
| 50 7.55 | 51 1 |
| 52 15 | 53 19 |
| 54 20.078 | 55 < |
| 56 mathematical expression | 57 Other |
| 58 number of boys | |
| 59 first model | 60 0.36 |
| 61 $m = 6.35 + 3.14$ | |
| 62 first model | 63 59 |
| 64 12 | 65 Prime |
| 66 11 | 67 One |
| 68 5 | 69 $8.6 - 7.4$ |
| 70 5 | 71 18 |
| 72 2 | 73 1 |

- | | |
|---------------------------|----------------------|
| 74 35 | 76 7 |
| 75 7 | 78 25,025 |
| 77 5,000 | 80 4×807 |
| 79 5×183 | 82 9 |
| 81 Second model | |
| 83 7×504 | |
| 84 $5,403 \times 67$ | 86 30 |
| 85 240,000 | |
| 87 6 | |
| 88 4 weeks, 2 days | |
| 89 189,025 | 90 60 |
| 91 63,000 | 92 5×5 |
| 93 60 | 94 4,035 |
| 95 20 | 96 101 |
| 97 24 | 98 437 |
| 99 40 | 100 10 |
| 101 1 | 102 Dividend |
| 103 8 | 104 1 |
| 105 1 | 106 0.3×0.9 |
| 107 1,200 | 108 3 |
| 109 0.027 | 110 7.641 |
| 111 4.632 | 112 7,850 |
| 113 0.46 | 114 5,200 |
| 115 Second model | |
| 116 $[13.5 + 2.5] \div 4$ | 117 10,000 |
| 118 0.224 | 119 68.39 |
| 120 $5.6 + 0.5 - 0.6$ | 121 $n + 6$ |
| 122 $n \times 2 + 1$ | 123 $n \div 10$ |
| 124 $n + 2$ | 125 480×7 |
| 126 X | 127 $29 + 3$ |
| 128 $3.6 + 1.6 = x$ | |

Second Complete

- | | |
|---|---------------|
| 1 Tenths - 0.6 | |
| 2 Nine thousand three and thirty-six hundredths | 3 $3 - 2 - 5$ |
| 4 1.27 | 5 27 |
| 6 $2,000 + 400 + 9 + 0.008$ | 7 34 62 |
| 8 0.012 | 9 45.27 |
| 10 Whole number | 11 65 |

Guide Answers

- [12] 328 [13] 48 thousandths
 [14] 75 [15] 1.5
 [16] 6,966.34 [17] 2
 [18] 8.79 [19] 2
 [20] Multiple [21] Factor
 [22] 3 [23] Prime number
 [24] 11 [25] 11
 [26] 24 [27] 36
 [28] 4 [29] 1
 [30] Their product [31] 1
 [32] 0 [33] 15
 [34] 2 [35] 4
 [36] 50 [37] 2
 [38] 1 [39] Dividend
 [40] <
 [41] 75 [42] $4,258 \times 0.01 = 42.58$
 [43] $0.1 - 10$ [44] 700×20
 [45] 0.01 [46] 20
 [47] 29.7 [48] 60
 [49] 47×38 [50] 1.37
 [51] 1 [52] 632
 [53] 1,000 [54] 2.282
 [55] 8 [56] 14,000
 [57] 18,000 [58] 3.15
 [59] 0 [60] 4.7
 [61] 40 [62] 31.5
 [63] 20, 23, $n + 3$
 [64] 23, 28, $n + 5$

Third Answer the following

- [1] 148 km
 [2] $1.5 - (0.5 + 0.7) = 0.3$ L
 [3] $56.5 - (12.25 + 15.5) = 28.75$ pounds

[4] $X = 21 + 15 = 36$

X	
21	15

[5] $x = 225 - 107.5 = 117.5$

225	
X	107.5

[6] $x = 7.382 - 2.456 = 4.926$

7.382	
X	2.456

[7] $w = 9.2 - 5.025 = 4.175$

9.2	
w	5.025

- [8] after 12 days
 [9] $12 \times 25 = 300$ passengers
 [10] area = $256 \times 62 = 15,872$ m²
 [11] $1,023 \times 18 = 18,414$ pounds
 [12] $96 \div 4 = 24$ books
 [13] $76 \div 6 = 12$ R4
 [14] $256 \times 8 = 2,048$ balls
 [15] $2,880 \div 12 = 240$ cups
 [16] $480 \div 15 = 32$ minibuses
 [17] the left money =
 $69,380 - 65,940 = 3,440$ pounds
 Value of each installment =
 $3,440 \div 4 = 860$ pounds
 [18] $(20 \times 40) + (20 \times 3) + (6 \times 40) + (6 \times 3)$
 $= 1,118$
 [19] 1.135, 1.315, 1.351, 1.531, 3.135
 [20] $45.235 + 52.012 = 97.247$ kg
 [21] $99.8 + 45.75 + 70.25 = 215.8$ pounds
 she can not
 [22] 748.3
 [23] 1, 2, 3, 4, 6, 9, 12, 18, 36
 1, 2, 3, 4, 6, 8, 12, 24
 1, 2, 3, 4, 6, 12 GCF = 12
 [24] Ahmed = $125 \times 10 = 1,250$ pounds
 Mariam = $125 \times 6 = 750$
 Total = $1,250 + 750 + 125 = 2,125$
 [25] $7 + 3 \times 2 - 12 \div 10 = 11.8$
 [26] 5, 10, 15, 20, 25
 [27] $20 \times 65.5 = 1,310$ m
 [28] remainder = $95.5 - 35.75 = 59.75$ pounds
 [29] 1
 [30] $(9.8 - 2.6) \times 0.01 = 0.072$
 [31] $200 + 80 + 5 + 0.2 + 0.08 + 0.005$
 [32] 590 m, 0.65 km, 0.8 km, 1 km
 [33] $k = 5.4$
 [34] 10, 8.5, 13.75 $n + 1.5$

Guide Answers

Maths Book

(1) Cairo (Al Basatin District)

First

- | | | |
|---------|------|---------|
| 1 0.60 | 2 30 | 3 8,975 |
| 4 2 | 5 < | 6 0.25 |
| 7 1.625 | | |

Second

- | | | |
|---------|---------|---------|
| 1 0.823 | 2 34.62 | 3 18.99 |
| 4 1.426 | 5 2,134 | 6 0 |
| 7 20 | 8 14 | |

Third

- | | | |
|---------|-----------------|---------------|
| 1 0.453 | 2 0.08 | 3 7.667 |
| 4 25.5 | 5 $50 + n = 80$ | 6 $29 \div 3$ |
| 7 20 | | |

Fourth

- $12 = 2 \times 2 \times 3$
 $18 = 2 \times 3 \times 3$
 $GCF = 2 \times 3 = 6$
 $LCM = 2 \times 2 \times 3 \times 3 = 36$
- $12 + (4.6 - 2.6) \times 4 = 12 + 2 \times 4 = 12 + 8 = 20$
- $(9.8 - 2.6) \times 0.01 = 7.2 \times 0.01 = 0.072$
- The number of kilometers
 $= 14 \times 120 = 1,680 \text{ km}$

(2) Giza (Al Ayyat District)

First

- | | | |
|----------|----------------|------|
| 1 0.6 | 2 2 | 3 1 |
| 4 8.53 | 5 $n \times 2$ | 6 13 |
| 7 18.047 | | |

Second

- | | | |
|--------------|--------|------|
| 1 hundredths | 2 0.37 | 3 65 |
| 4 1 | 5 30 | 6 4 |
| 7 30 | 8 30.3 | |

Third

- | | | |
|---------|-----------|-------------------|
| 1 341 | 2 8,000 | 3 $3.6 + 1.6 = x$ |
| 4 6 | 5 2 and 7 | 6 < |
| 7 4.632 | | |

Fourth

- The difference $= 2.569 - 1.269 = 1.3 \text{ km}$
- $GCF = 2 \times 3 = 6$
 $LCM = 2 \times 2 \times 3 \times 3 = 36$
- $285.285 = 200 + 80 + 5 + 0.2 + 0.08 + 0.005$
- The price of bottles $= 24.5 \times 100 = 2,450 \text{ LE}$

(3) Giza (Imbaba District)

First

- | | | |
|--------|---------|------|
| 1 120 | 2 0.008 | 3 2 |
| 4 1.58 | 5 1,000 | 6 60 |
| 7 6 | | |

Second

- | | | |
|---------|--------|--------|
| 1 0.8 | 2 1 | 3 0.85 |
| 4 3 | 5 3 | 6 12 |
| 7 23.57 | 8 5.77 | |

Third

- | | | |
|-----|------|-------|
| 1 7 | 2 17 | 3 4.5 |
| 4 9 | 5 0 | 6 0 |
| 7 3 | | |

Fourth

- $GCF = 3$
 $LCM = 3 \times 3 \times 2 \times 2 = 36$
- $1.2 \times 32 = 38.4$
- They saved $= 75.8 + 24.2 = 100 \text{ LE}$
- $144 : 12 = 12$

(4) Giza (El Dokky District)

First

- | | | |
|-----------------|-----------|------|
| 1 $a + 3.1 = 5$ | 2 2 | 3 4 |
| 4 4.041 | 5 $n + 3$ | 6 24 |
| 7 15 | | |

Second

- | | | |
|--------------------|--------|---------|
| 1 1.29 | 2 1.2 | 3 0.07 |
| 4 $72 \div 4 = 18$ | 5 20 | 6 7,000 |
| 7 4 | 8 8.64 | |

Third

- | | | |
|------|---------|-------|
| 1 1 | 2 0.01 | 3 36 |
| 4 8 | 5 1,000 | 6 $>$ |
| 7 10 | | |

Fourth

- 1 GCF = 2
LCM = $2 \times 5 \times 3 = 30$
- 2 $0.35 \div 0.5 = 3.5 \div 5 = 0.7$
- 3 Ahmed paid = $10 \times 8.5 = 85$ pounds
- 4 590 m , 0.65 km , 0.8 km , 1 km

(5) Al Azhar Al Sharif

First

- | | | |
|---------|--------|-----------|
| 1 0.008 | 2 3.57 | 3 $n + 2$ |
| 4 2.39 | 5 2 | |

Second

- | | | |
|---|----------|-------|
| 1 7.5 | 2 1 | 3 6.3 |
| 4 6 | 5 27.005 | |
| 6 45.072 , 45.572 , 45.702 , 45.729 | | |
| 7 Mohamed bought = $3.75 + 2.25 = 6$ kg | | |

Third

- | | | |
|-----------|------|-------|
| 1 230 | 2 7 | 3 60 |
| 4 125 R 1 | 5 15 | 6 2.2 |
| 7 60 | | |

Fourth

- 1 GCF = 3
LCM = $3 \times 3 \times 2 \times 2 = 36$
- 2 $2,250 \div 25 = 90$
- 3 $2.33 \times 2.4 = 5.592$
- 4 The difference = $2.569 - 1.269 = 1.3$ km

(6) Alexandria (Middle District)

First

- | | | |
|---------------|----------|--------------|
| 1 $>$ | 2 2 | 3 Hundredths |
| 4 3.6 | 5 0.0855 | 6 4.2 |
| 7 25 Hundreds | | |

Second

- | | | |
|-----------|---------|-----------|
| 1 20 | 2 6.081 | 3 $n + 5$ |
| 4 0.02 | 5 2,157 | 6 3 |
| 7 3 and 7 | 8 2.06 | |

Third

- | | | |
|---------|---------|-------|
| 1 1.5 | 2 2.003 | 3 0.2 |
| 4 95.63 | 5 18 | 6 36 |
| 7 3.64 | | |

Fourth

- 1 GCF = 5
LCM = $3 \times 5 \times 2 = 30$
- 2 $3.4 \times 1.8 = 6.12$
- 3 The sum of the lengths = $44.5 + 11.2 = 55.7$ cm
- 4 $4.78 = 4 + 0.7 + 0.08$

(7) Alexandria (Al Agamy District)

First

- | | | |
|---------|----------|----------|
| 1 4.162 | 2 19.085 | 3 12,400 |
| 4 45 | 5 12.019 | 6 0.006 |
| 7 12.8 | | |

Second

- | | | |
|-----------|----------------|------------------|
| 1 5 and 7 | 2 1,000 | 3 0 |
| 4 tenths | 5 $n \times 3$ | 6 47×38 |

1 $3.5 = w + 2.8$ 2 500

Third

1 0.46 2 2.25 3 $5 \times (2.1 + 6)$
4 3 tenths 5 15.7 6 44
7 90

Fourth

1 $k = 7.8 - 2.4 = 5.4$
2 The number of toys = $320 \times 12 = 3,840$ toys
3 $GCF = 2 \times 2 \times 3 = 12$
 $LCM = 2 \times 2 \times 3 \times 3 \times 2 = 72$
4 The price of each book = $490 \div 14 = 35$ pounds

(8) Alexandria (West District)

First

1 hundredths 2 45,000 3 7.6
4 8.009 5 2.369 6 3.27
7 4,259

Second

1 36.407 2 1 3 30
4 2 5 75 6 30.4×8.2
7 24.5 8 60

Third

1 $x + 0.8 - 1.6$ 2 34 3 10
4 10 5 96 6 multiplication
7 $n + 4$

Fourth

1 $GCF = 2 \times 3 = 6$
 $LCM = 2 \times 2 \times 3 \times 3 = 36$
2 Ahmed paid = $13.85 \times 9 = 124.65$ pounds
3 $13.5 + 0.25 \div 0.1 - (12.8 \times 0.1)$
 $= 13.5 + 2.5 - 1.28 = 16 - 1.28 = 14.72$
4 The rule : $n + 1.5$
Inputs : 10, 8.5 Outputs : 13.75

(9) El Behera - (Damanhour District)

First

1 2.53 2 3 3 1
4 hundredths 5 11 6 14
7 =

Second

1 $n + 3$ 2 120 3 10
4 0.7 5 1.11 6 2.142
7 9 hundredths 8 0.7541

Third

1 1.53 2 31 3 1
4 0 5 $8.6 - 7.4$ 6 35
7 0.3

Fourth

1 a) $4,864 \div 32 = 152$ b) $321 \times 15 = 4,815$
2 $5.5 \div 5 \times 10 - 10 = 1.1 \times 10 - 10 = 11 - 10 = 1$
3 $GCF = 5$
 $LCM = 2 \times 2 \times 5 \times 7 = 140$
4 The sum = $17.25 + 8.5 = 25.75$ pounds

(10) Qalyubiyya - (Banha District)

First

1 20.078 2 0.08 3 0.004
4 $2 + n$ 5 5,600 6 0.1
7 =

Second

1 6.345 2 0.0536 3 30
4 7 5 $10 + 7 + 0.7$ 6 7.85
7 35.47 8 42.12

Third

1 1 2 200.005 3 0.15
4 444×17 5 6 6 6.5
7 Tenths

Guide Answers

Fourth

- 1 The total cost = $5 \times 3.81 = 19.05$ pounds
- 2 $(45.2 - 14) \div 0.1 + 32.2$
 $= 31.2 \div 0.1 + 32.2 = 312 + 32.2 = 344.2$
- 3 The length of each piece = $8.7 \div 3 = 2.9$ meters
- 4 $75 \times 32 = (70 \times 30) + (70 \times 2) + (5 \times 30) + (5 \times 2) = 2,100 + 140 + 150 + 10 = 2,400$

(11) Damietta - (Ras El Bar District)

First

- 1 5,431.8
- 2 1
- 3 <
- 4 250.25
- 5 3 and 5
- 6 5,000
- 7 10

Second

- 1 35
- 2 3.2×2.2
- 3 20
- 4 1,000
- 5 2
- 6 0
- 7 12
- 8 3.025

Third

- 1 1.3
- 2 3
- 3 5
- 4 0.24
- 5 11.2
- 6 2.2
- 7 2

Fourth

- 1 The number of bags = $120 \div 12 = 10$ pens
- 2 GCF = $2 \times 2 = 4$
 LCM = $2 \times 2 \times 3 \times 2 = 24$
- 3 $3.3 \div 3 \times 10 - 10 = 1.1 \times 10 - 10 = 11 - 10 = 1$
- 4 The remainder = $78.4 - 52.74 = 25.66$ L.E

(12) Assiut - (Assiut District)

First

- 1 0.005
- 2 5
- 3 =
- 4 $x + 2.5 = 7$
- 5 101
- 6 3
- 7 0.7

Second

- 1 $2.3 + 5.4 = 7.7$
- 2 2
- 3 8
- 4 1
- 5 26
- 6 45
- 7 30
- 8 7.46

Third

- 1 24
- 2 0.01
- 3 6,726
- 4 $(4.62 - 3.1) \times 2$
- 5 <
- 6 6.15
- 7 $n + 2$

Fourth

- 1 The weight of all fish = $53.25 + 46.7 = 99.95$ kg
- 2 GCF = 2, LCM = $2 \times 2 \times 3 \times 5 = 60$
- 3 The distance = $1,050 \div 75 = 14$ meters

$$\begin{array}{r} 67 \\ \times 76 \\ \hline 402 \\ + 4690 \\ \hline 5092 \end{array}$$

(13) El Gharbia - (East District)

First

- 1 0.004
- 2 $x + 2.7 - 3.8$
- 3 13
- 4 1
- 5 9.8
- 6 30.045
- 7 0.714

Second

- 1 18
- 2 60
- 3 2,500
- 4 5
- 5 0.12
- 6 6.177
- 7 Dividend
- 8 64.064

Third

- 1 8
- 2 >
- 3 35
- 4 9
- 5 0.253
- 6 11.3
- 7 6

Fourth

- 1 $12 + (9 - 2) \times 5 = 12 + 7 \times 5 = 12 + 35 = 47$
- 2 $4 = 2 \times 2$
 $6 = 2 \times 3$
 LCM = $2 \times 2 \times 3 = 12$

- 3 They saved = $17.25 + 8.5 = 25.75$ pounds
 4 $1,447 \div 12 = 123 \text{ R } 1$

(14) Kafr El Shiekh - (East District)

First

- 1 0.36 2 0.02 3 3
 4 36 5 $n \times 8$ 6 2.726
 7 101

Second

- 1 7.01 2 315 R 2 3 10
 4 56.3 5 $(20 \times 7) + (4 \times 30)$
 6 30 7 1 8 6.512

Third

- 1 $9 - x = 3.5$ 2 0.42 3 0.026
 4 0.025 5 116 6 1.55
 7 0.7

Fourth

- 1 $\text{LCM} = 2 \times 5 \times 2 \times 3 = 60$

	100	30	7
2	40	4,000	1,200
	5	500	150
			280
			35

$$45 \times 137 = 4,000 + 1,200 + 280 + 500 + 150 + 35 = 6,165$$

- 3 The weight of all fish = $53.25 + 46.8 = 100.05$ kg
 4 $3,872 \div 11 = 352$

$$\begin{array}{r} 352 \\ 11 \overline{) 3872} \\ \underline{- 33} \\ 57 \\ \underline{- 55} \\ 22 \\ \underline{- 22} \\ 00 \end{array}$$

(15) Dakahlia - (East District)

First

- 1 3.4 2 18 3 79.43
 4 5.6 5 830 6 11
 7 600

Second

- 1 9 2 0.51 3 1.82
 4 20 5 62.15 6 19
 7 0.009 8 8

Third

- 1 0 2 $n + 2$ 3 tenths
 4 9 5 6,700 6 $<$
 7 50,407

Fourth

- 1 $D = 6.6 - 5.3 = 1.3$
 2 The sum of money = $17.25 + 8.5 = 25.75$ pounds
 3 $2.5 \times 2.3 = 5.75$
 4 Each class gets = $240 \div 6 = 40$ prizes

(16) Qena - (Nagaa Hamady District)

First

- 1 hundredths 2 6 3 33.3
 4 1 5 5 6 30
 7 0

Second

- 1 3 2 80 3 0.51
 4 101 5 37.5 6 4
 7 18 8 91.36

Third

- 1 30.51 2 100 3 2.01
 4 6 5 20,000 6 6
 7 $<$

Fourth

- 1 The order : 0.58 , 8.005 , 8.05 , 8.5
 2 $32 \times 12 = 384$
 3 GCF = 5
 $\text{LCM} = 2 \times 5 \times 3 = 30$
 4 The flour that Mona had = $3.75 + 2.25 = 6$ kg

Guide Answers

(17) Marsa Matruh - (Al Alamein)

First

- | | | |
|-----------|----------|---------|
| 1 320.804 | 2 179.32 | 3 0.8 |
| 4 8 | 5 39.02 | 6 0.002 |
| 7 2.7 | | |

Second

- | | | |
|-----------|--------------------|------------------|
| 1 3 and 5 | 2 $p + 7.5 = 10.1$ | |
| 3 100 | 4 multiple | 5 tenth |
| 6 10 | 7 900 | 8 39×28 |

Third

- | | |
|--------|------|
| 1 0.48 | 2 65 |
|--------|------|

3 $(13.5 + 2.5) \div 4$

4 20 thousandths

5 24

6 1

7 24

Fourth

1 $k = 7.5 - 5.5 = 2$

2 Alaa saved = $15 \times 225 = 3,375$

3 $GCF = 2 \times 7 = 14$

$LCM = 2 \times 2 \times 7 \times 3 = 84$

4 The distance = $288 \div 12 = 24$ km

